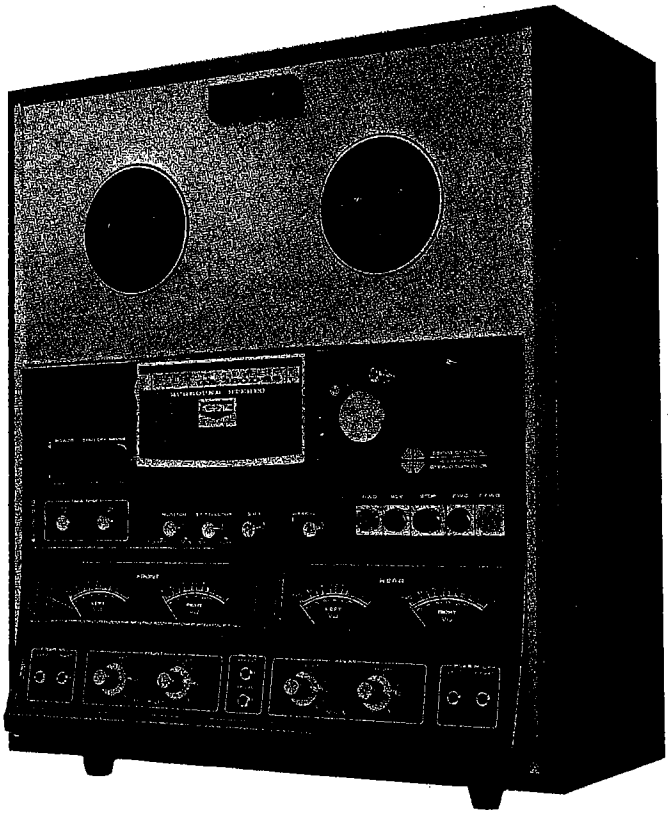
SERVICE MANUAL

PARTS LIST

PRIDE IN QUALITY

AKAI SURROUND STEREO TAPE DECK

MODEL GX-280D-SS



SURROUND STEREO TAPE DECK

MODEL GX-280D-SS

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SECTION 1

SERVICE MANUAL

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I. SPECIFICATIONS

An asterisk next to a figure indicates the minimum guaranteed performance.

TRACK SYSTEM		4-track 4-channel/2-channel compatible stereo system
REEL CAPACITY		Up to 7" reel
TAPE SPEED		7-1/2 ips (19 cm/sec.) ± 0.5% ($*^{+1.0\%}_{-0.5\%}$)
		3-3/4 ips (9.5 cm/sec.) ± 0.5% (*±1.0%)
WOW AND FLUTTER		Less than 0.10% (*0.12%) R.M.S. at 7-1/2 ips
		Less than 0.15% (*0.18%) R.M.S. at 3-3/4 ips
FREQUENCY RESPONSE		
	Low Noise Tape	20 to 25,000 Hz (*30 to 24,000 Hz) ±3 dB at 7-1/2 ips
		30 to 20,000 Hz (*30 to 15,000 Hz) ±3 dB at 3-3/4 ips
	Regular Tape	30 to 23,000 Hz (*30 to 22,000 Hz) ±3 dB at 7-1/2 ips
		30 to 19,000 Hz (*30 to 13,000 Hz) ±3 dB at 3-3/4 ips
SIGNAL TO NOISE RATIO		Better than 55 dB
		*Better than 48 dB at 7-1/2 ips
		*Better than 46 dB at 3-3/4 ips
DISTORTION FACTOR		0.8% at 1,000 Hz "0" VU recording
		*Less than 2% at 7-1/2 ips, 1,000 Hz "0" VU recording
		*Less than 3% at 3-3/4 ips, 1,000 Hz "0" VU recording
CROSS TALK		Better than 45 dB 2-channel stereo
		Better than 40 dB 4-channel stereo
ERASE RATIO		Better than 70 dB
BIAS FREQUENCY		100 to 110 kHz
BIAS LEAK		Less than −20 VU
HIGH FREQUENCY DEVIATION		
	Between channels	Within 3 dB, using a 8,000 Hz at 3-3/4 ips recorded tape
	Between FWD & REV	Within 4 dB, using a 8,000 Hz at 3-3/4 ips recorded tape
INPUTS	Mic Input	0.5 mV Impedance: 10 kΩ
	Line Input	100 mV Impedance: 150 kΩ
	Din Input	10 mV (Low) and 60 mV (High)
OUTPUTS	Line Output	1.228V (4 ±1.5 dB) Impedance: 25 kΩ
	Din Output	0.4V
RECORDING CAPACITY		30/60 min., 4-channel/2-channel stereo recording, using a 1,200 ft. tape at 7-1/2 ips
FAST FORWARD AND REWIND TIME		68/83 sec., using a 1,200 ft. tape at 60/50 Hz
MOTORS	Capstan Motor	2-speed servo control outer rotor motor
		Type: SCM2-24
		Revolutions: 520 r.p.m. at 7-1/2 ips
		260 r.p.m. at 3-3/4 ips
	Reel Motor	Two 6-pole eddy current outer rotor motors
		Type: 24XO-MR
		Revolutions: 930 r.p.m. at 50 Hz
		1,120 r.p.m. at 60 Hz
HEADS	Full Track Erase Head	Type: EF-200
		Gap: 0.4 mm
		Impedance: 350Ω ±10% at 100 kHz
		D.C. Resistance: 3Ω
	4-track Erase Head	Type: E4-250
		Gap: 0.6 mm
		Impedance: 195Ω ±10% at 100 kHz
		D.C. Resistance: 3.5Ω
	Recording Head	Type: R4-280
		Gap: 4 micron ±15%
		Impedance: 16Ω ±15% at 1 kHz
		D.C. Resistance: 13Ω
	Playback Head	Type: P4-280
		Gap: 1.7 micron ±15%
		Impedance: 1,346Ω at 1 kHz
		D.C. Resistance: 350Ω

TRANSISTORS	2SA564(R) . . . 2	2SC968(2) (3) (4) . . . 8
	2SC458LG(C) . . . 20	2SC1014(D) (E) . . . 1
	2SC711(D) (E) (F) (G) . . . 13	2SD234(Y) . . . 2
	2SC971(2) (3) (red) . . . 2	2SC945(Q) (R) (S) . . . 18
I.C.	LD-3141 . . . 4	
DIODES	1N34A . . . 32	10DC-1 (black) . . . 1
	10D1 . . . 14	10DC-1 (red) . . . 1
	10D4 . . . 3	RD9A . . . 1
THERMISTER	41D26 . . . 1	
POWER SUPPLY	100 to 240V A.C. 50/60 Hz	
POWER CONSUMPTION	140W	
INSULATION RESISTANCE	More than 50 MΩ	
INSULATION DURABILITY	500V D.C. for more than 1 min. duration	
DIMENSIONS	435(W) x 505(H) x 250(D) mm (17.4" x 20.2" x 10")	
WEIGHT	22.4 kg (49.5 lbs.)	

NOTE: Specifications subject to change without notice.

II. MEASURING METHOD

1. TAPE SPEED DEVIATION

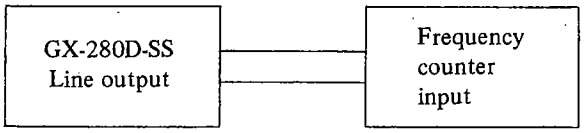


Fig. 1

As shown in Fig. 1, connect a Frequency Counter to the Line Output of Model GX-280D-SS. Playback a 1,000 Hz pre-recorded test tape. Take a Frequency Counter reading at the beginning, middle, and end of tape winding during playback. The maximum value of these respective readings will represent tape speed deviation.

2. WOW AND FLUTTER

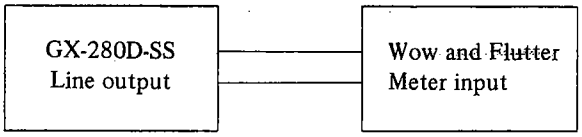


Fig. 2

Method A

As shown in Fig. 2, connect the Line Output of Model GX-280D-SS to the Input of a Wow and Flutter Meter. Playback a 3,000 Hz pre-recorded test tape and take a Wow and Flutter Meter reading at the beginning, middle, and end of tape winding. The maximum value of these respective readings will represent the Wow and Flutter.

Method B

Supply a 3,000 Hz sine wave signal from an Audio Frequency Oscillator and make a recording on a blank tape at the beginning, middle, and end of tape winding. Rewind and playback the resultant signal. Measure Wow and Flutter with a Wow and Flutter Meter. (The Wow and Flutter value of Method B will be close to twice that of Method A.)

3. FREQUENCY RESPONSE

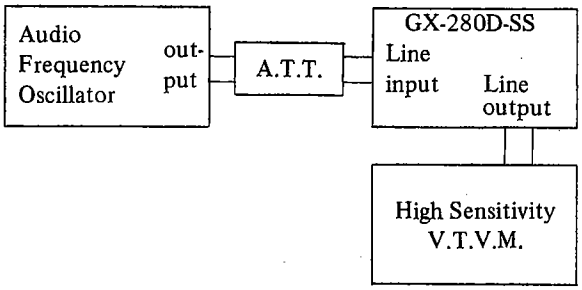


Fig. 3

For measuring Frequency Response, connect instruments as shown in Fig. 3 and proceed as follows:

1) Supply a 1,000 Hz sine wave signal to the Line Input of Model GX-280D-SS from an Audio Frequency Oscillator through an Attenuator.
2) Set recorder to recording mode and turn recording level control volume and line output level control volume to maximum. Adjust attenuator to obtain a +4 dB V.T.V.M. reading.
3) Under conditions described in 2) above, readjust attenuator so that the Line Output is −16 dB, and record 30 to 24,000 Hz spot frequencies.
4) Rewind tape and playback from the beginning. Take V.T.V.M. spot frequency readings and plot values on a graph.

NOTE: When measuring Frequency Response, new tape should be-used.

4. SIGNAL TO NOISE RATIO

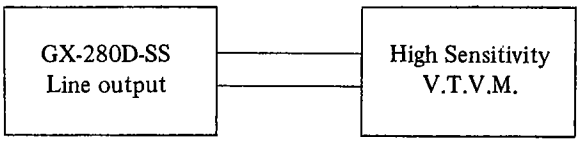


Fig. 4

As shown in Fig. 4, connect a High Sensitivity V.T.V.M. to the Line output of Model GX-280D-SS. Playback a 250 Hz "0" VU pre-recorded test tape and measure the output. Then remove the tape and measure the noise level under the same condition. Convert each of the measured values into decibels.

5. TOTAL HARMONIC DISTORTION

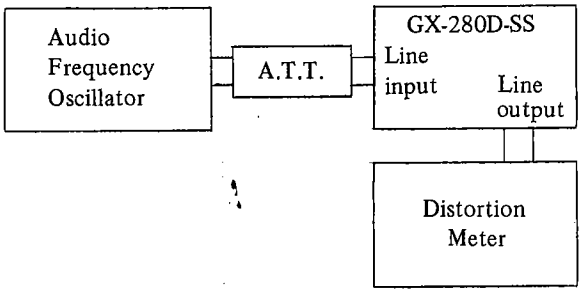


Fig. 5

Connect the measuring instruments as shown in Fig. 5 and record a 1,000 Hz sine wave signal at "0" VU. Playback the resultant signal and measure the overall distortion factor. Measure the noise level of the tape recorder without the tape. Connect the Audio Frequency Oscillator directly to the distortion meter for measurement of the distortion factor of the oscillator. The required distortion factor can be obtained from the results of the above measurement by the following formula.

$$d_0 = d - d_1 - d_2$$

where, d_0 = Required distortion factor
d = Overall distortion factor
d_1 = Noise level
d_2 = Distortion factor of the oscillator

NOTE: When measuring the distortion factor, new tape should be used.

6. CROSS TALK

1) Between the tracks (2-Channel)

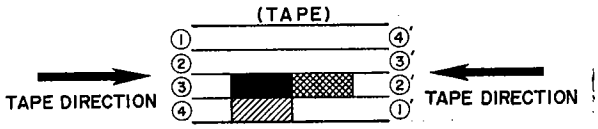


Fig. 6

As shown in the figure, first record a 1,000 Hz sine wave on track No. 3 at +3 VU level. Next, remove the 1,000 Hz input signal and record under a non-input condition. Then, playback the tape on tracks 3 and 1 (reversed condition of tape) through the 1,000 Hz B.P.F. (Band Pass Filter, Sensitivity . . . 1 : 1) and obtain the ratio between the two by using the following formula.

$$C = 20 \log \frac{E_0}{E_2 - E_1} \text{ (dB)}$$

where,
C = Desired cross talk ratio (dB)
E_0 = 1,000 Hz signal output level
E_2 = 1,000 Hz cross talk output level
E_1 = Non-input signal record level

2) Between the channels (4-Channels)

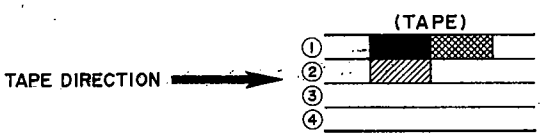


Fig. 7

As shown in the figure, first record a 1,000 Hz sine wave on track No. 1 at +3 VU level. Next, remove the 1,000 Hz input signal and record under a non-input condition.
Then, playback the tape on track No. 1 and No. 2 through the 1,000 Hz B.P.F. (Band Pass Filter, Sensitivity . . . 1 : 1) and obtain a ratio between the two from the following formula.

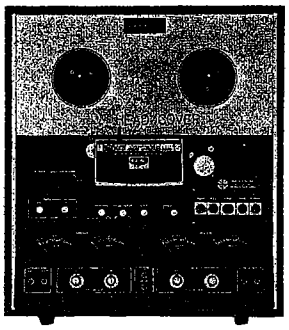
$$C = 20 \log \frac{E_0}{E_2 - E_1} \text{ (dB)}$$

where,
C = Desired cross talk ratio (dB)
E_0 = 1,000 Hz signal output level
E_2 = 1,000 Hz cross talk output level
E_1 = Non-input signal record level

III. DISMANTLING OF UNIT

In case of trouble, etc. necessitating disassembly, please disassemble in the order shown in photographs. Reassemble in reverse order.

1



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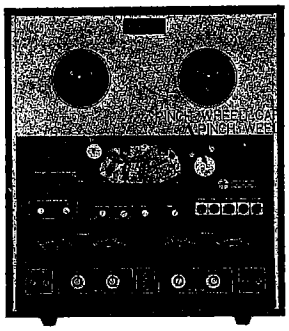

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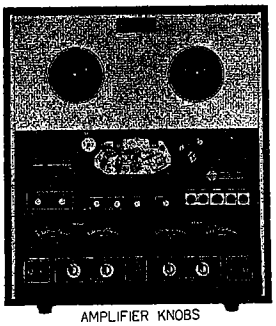

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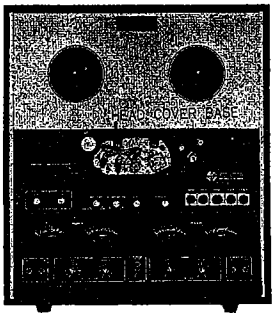

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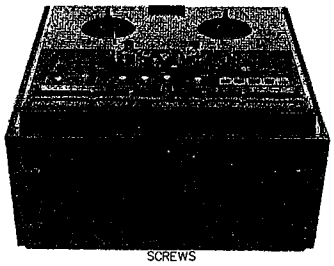

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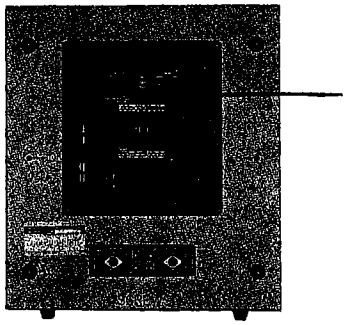

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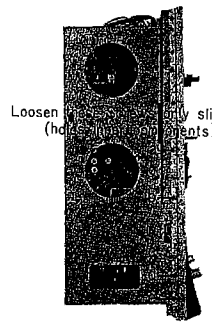

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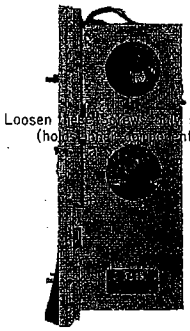

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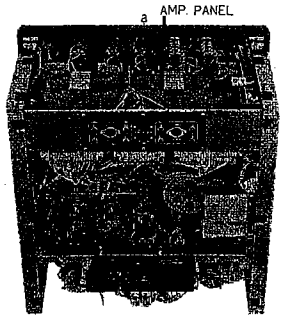

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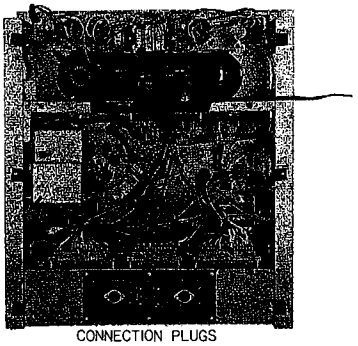

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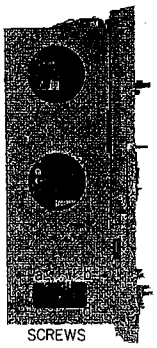

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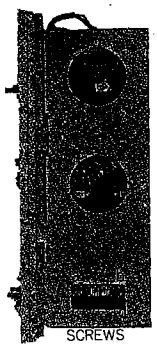

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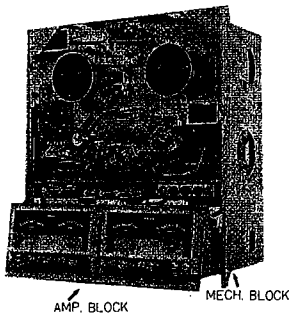

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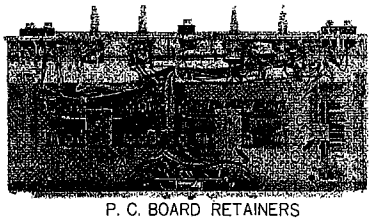


IV. MECHANISM ADJUSTMENTS

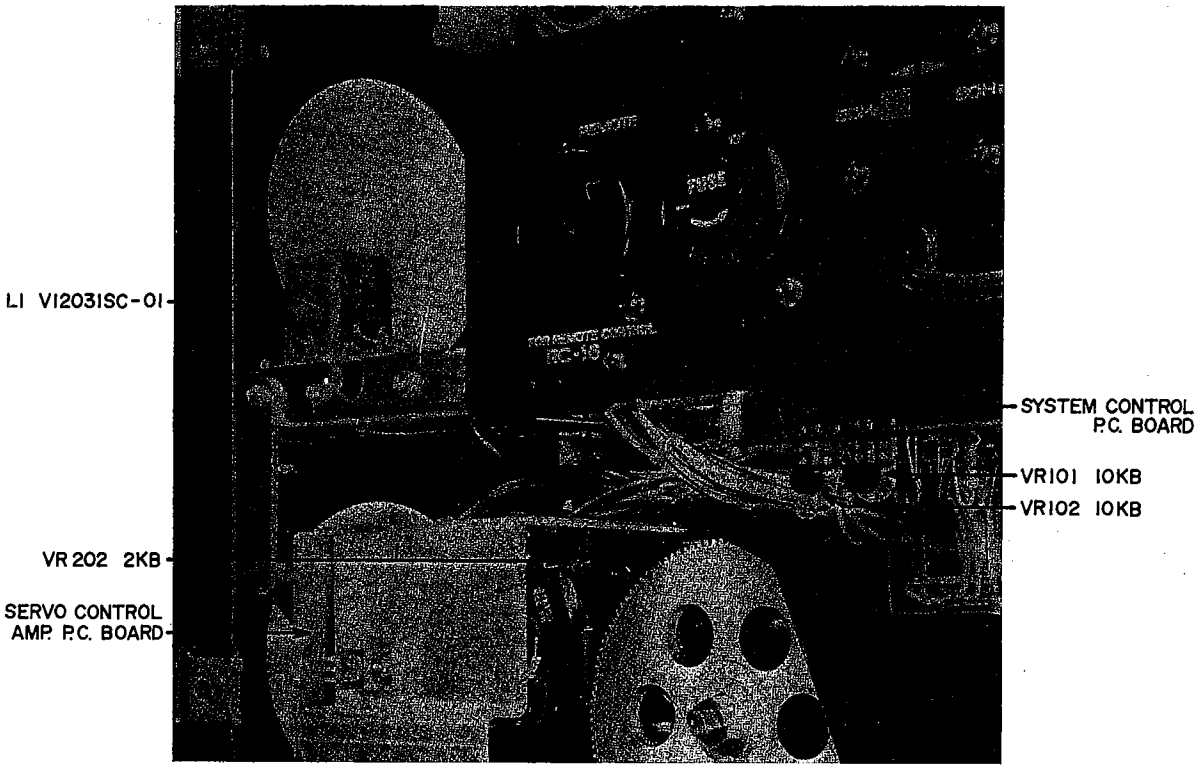


Fig. 8

1. TAPE SPEED ADJUSTMENT (Servo Control Amp. Adjustment)

1) Connect a frequency counter to the Line Outputs as shown in Fig. 1.
2) Depress 3-3/4 ips (9.5 cm/sec.) Tape Speed Selector Switch and playback a 1,000 Hz pre-recorded test tape.
3) Adjust the core of coil L1 (VI023SC-01) shown in Fig. 8 to obtain a frequency counter indication of 500 Hz ±1%.
4) After the 3-3/4 ips (9.5 cm/sec.) tape speed adjustment has been completed, depress the 7-1/2 ips (19 cm/sec.) Tape Speed Selector Switch and adjust Servo Control P.C. Board semi-fixed resistor VR202 (2 kB) shown in Fig. 8 to obtain a frequency counter indication of 1,000 Hz +1/−0.5%.

NOTE: When making tape speed adjustment, it is necessary to make the low speed (3-3/4 ips) adjustment first.

2. DIRECT FUNCTION TIME CONSTANT ADJUSTMENT

1) FWD ⇔ REV Time Constant
Adjust System Control P.C. Board semi-fixed resistor VR101 (30 kB) shown in Fig. 8 so that when the machine is switched from FWD to REV mode or from REV to FWD mode, the pinch wheel separates from the capstan in about 3 seconds.
2) Adjust System Control P.C. Board semi-fixed resistor VR102 (10 kB) shown in Fig. 8 so that when the machine is switched from F.FWD or RWD to FWD or REV mode, the time constant is about 1.5 seconds.

NOTE: When making adjustments outlined in Items 2. 1) and 2. 2) above, when the machine is switched from the various modes to FWD or REV, confirm that correct capstan motor (servo motor) revolutions are reached by the time the pinch wheel contacts the capstan.

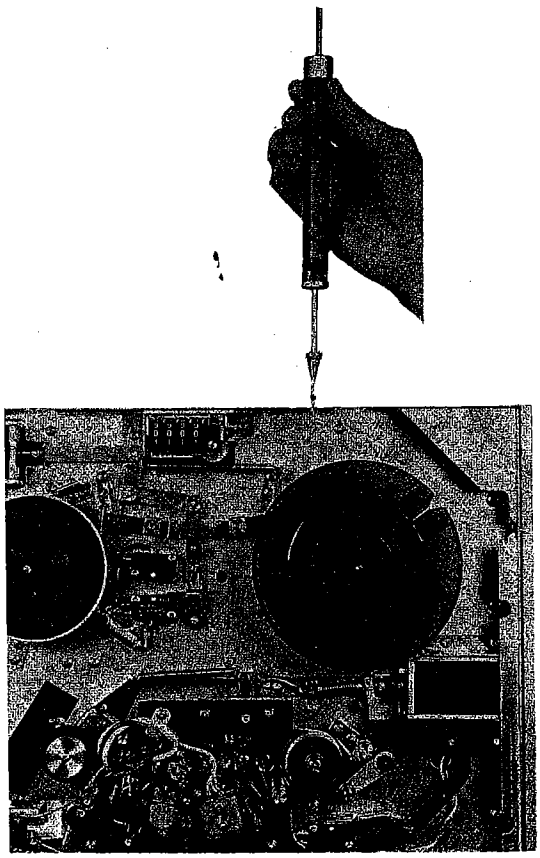


Fig. 9

3. BRAKE TENSION ADJUSTMENT

1) Use a 60 mm diameter tape wound on a 5" reel and measure the brake tension with a tension gauge as shown in Fig. 9. Ideal tape tension is 350 grams.
2) Brake tension adjustment methods are as follows: (Refer to Fig. 10)
   a. Change position of suspended springs (d) (d').
   b. Loosen screws (a), (b) as well as (a') (b') and adjust the vertical (up and down) position of spring suspension metal (c) (c').
   c. Loosen screws (e) (f) as well as (e') (f') and adjust the horizontal (left/right) position of brake band suspension metal (g) (g').

NOTE: In making brake tension adjustment, confirm that when the machine is set to each of the various modes (except stop mode) the brake band completely separates from the cloth tape on the brake drum (Refer to Fig. 11).

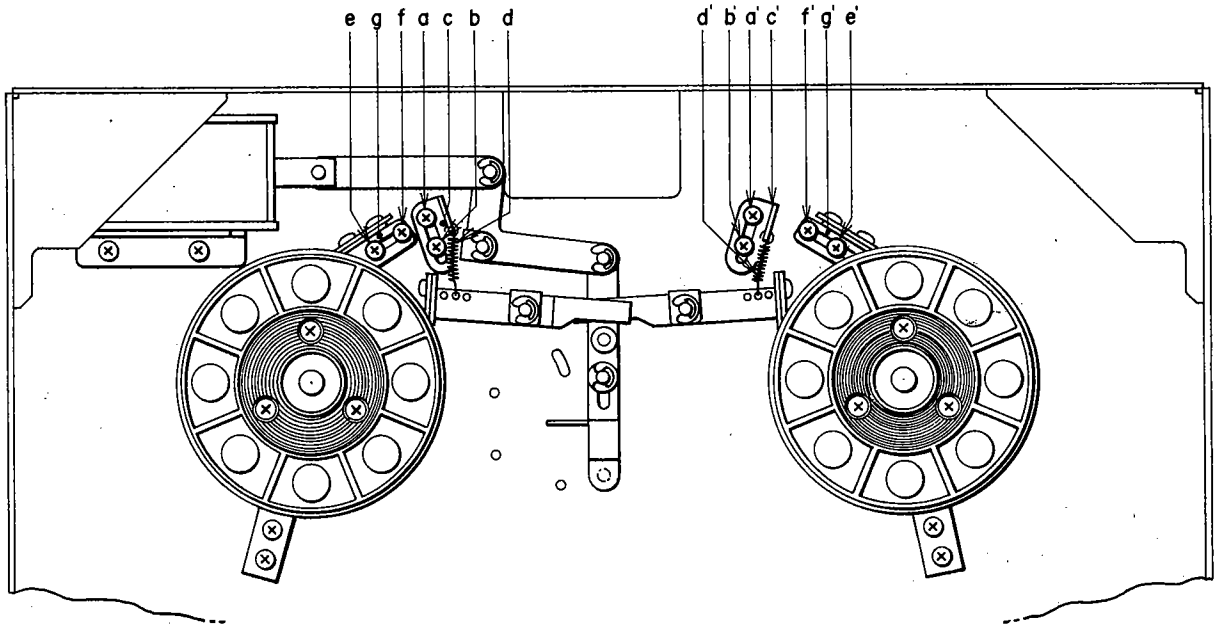


Fig. 10

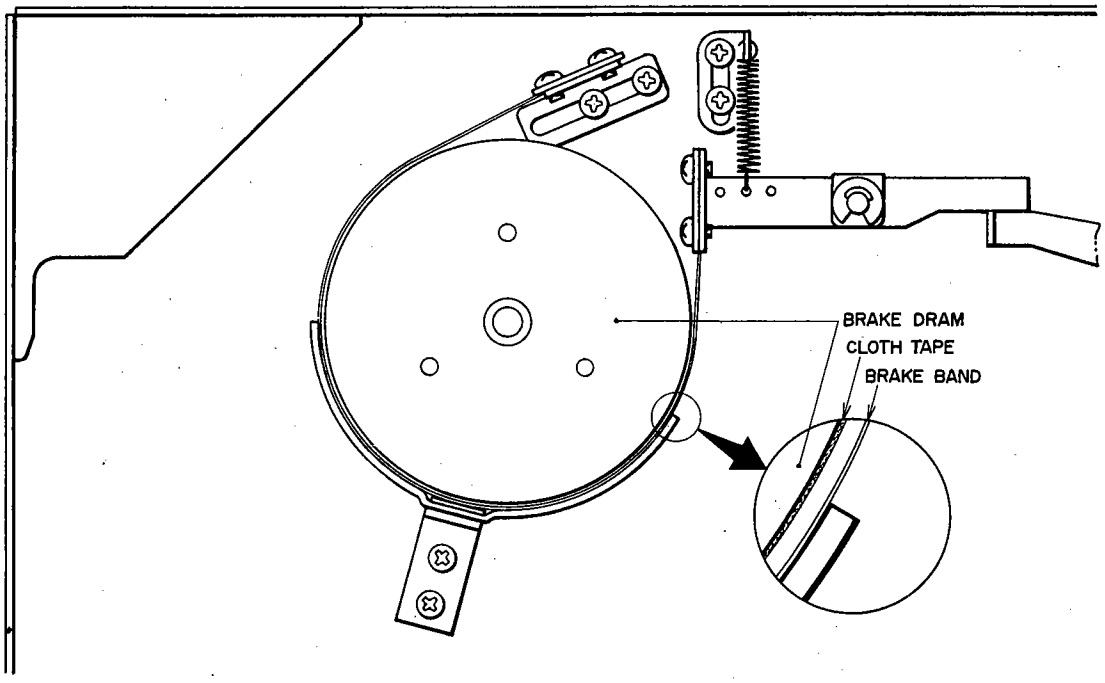


Fig. 11

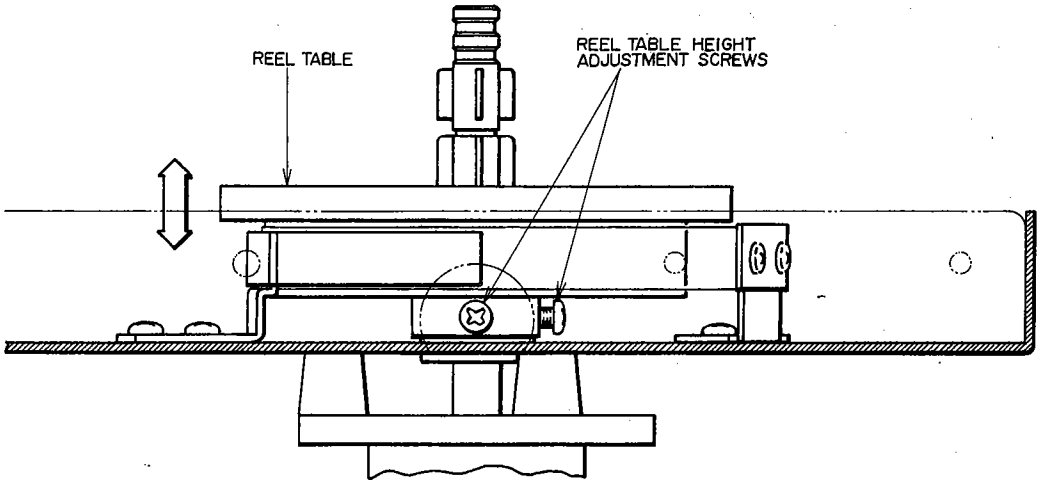


Fig. 12

4. SUPPLY VOLTAGE TO BOTH TORQUE MOTORS AS WELL AS TENSION AT VARIOUS OPERATING MODES

Mode \ Torque Motor	Left Side	Right Side
FWD	30V (35V) 55g	55V (60V) 180g
REV	55V (60V) 180g	30V (35V) 55g
RWD	100V (100V) 500g	11V (13V) 15g
F. FWD	11V (13V) 15g	100V (100V) 500g

Figures in parentheses indicate voltage at 60 Hz.

Chart 1

5. REEL TABLE HEIGHT ADJUSTMENT

Loosen the reel table height adjustment screws shown in Fig. 12 and adjust by moving the reel table as indicated by the arrow and positioning so that the tape winds in the center of the reel.

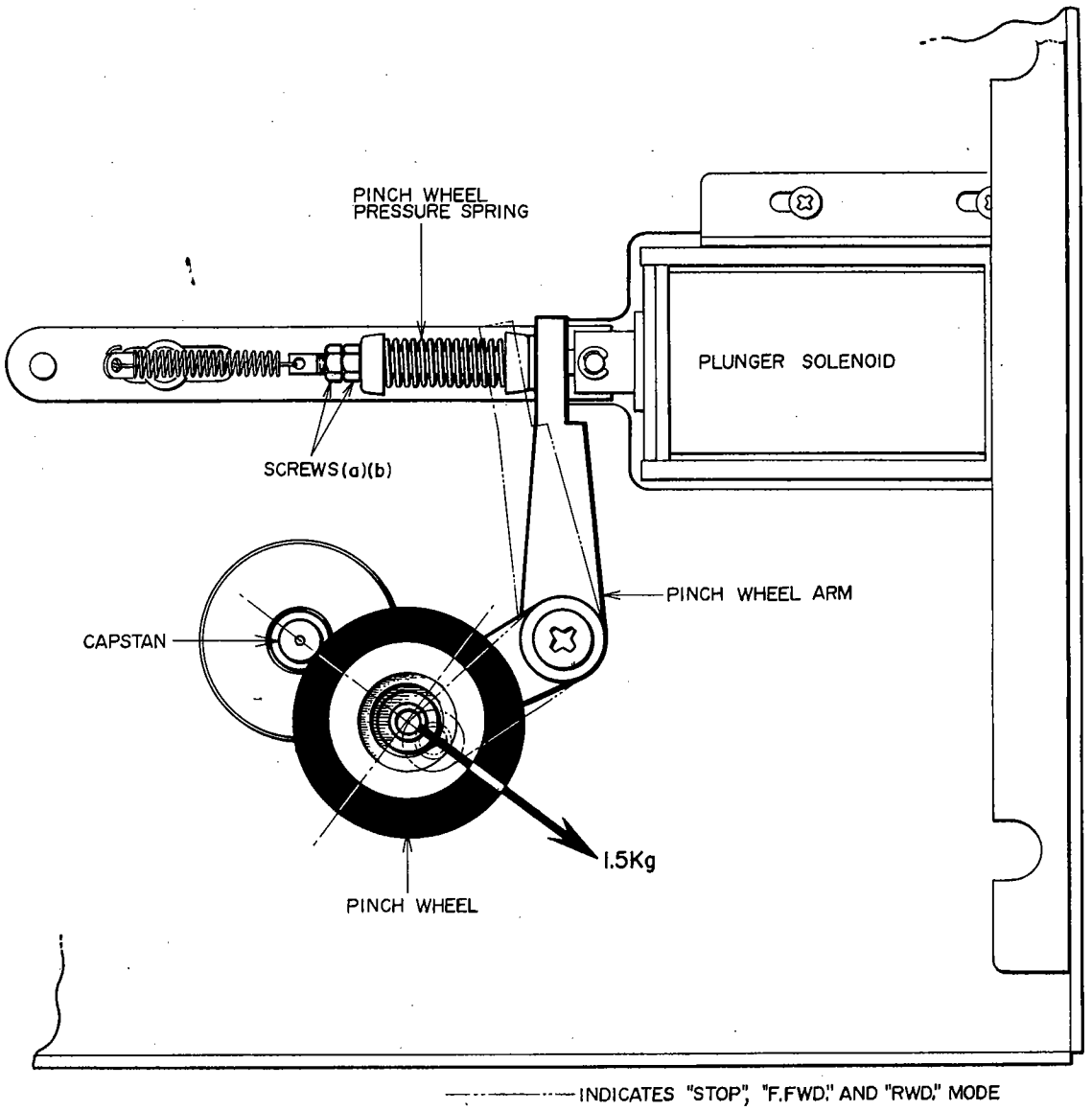


Fig. 13

6. PINCH WHEEL PRESSURE MEASUREMENT AND ADJUSTMENT

Use a tension gauge and measure the pinch wheel pressure as shown in Fig. 13. Read the value on the gauge as soon as the pinch wheel separates from the tape and tape travel stops. Ideal pinch wheel pressure is 1.5 kg. To regulate pinch wheel pressure, adjust nuts (a), (b) shown in Fig. 13.

V. HEAD ADJUSTMENTS

1. HEAD CONSTRUCTION

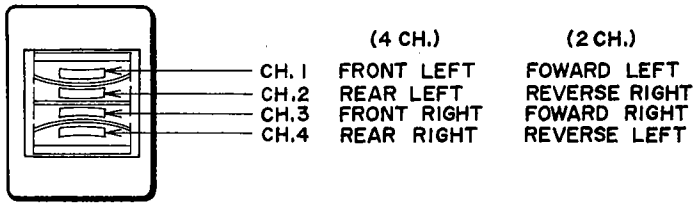


Fig. 14 4 Track 4 Channel/2 Channel Head

2. ORDER OF HEADS

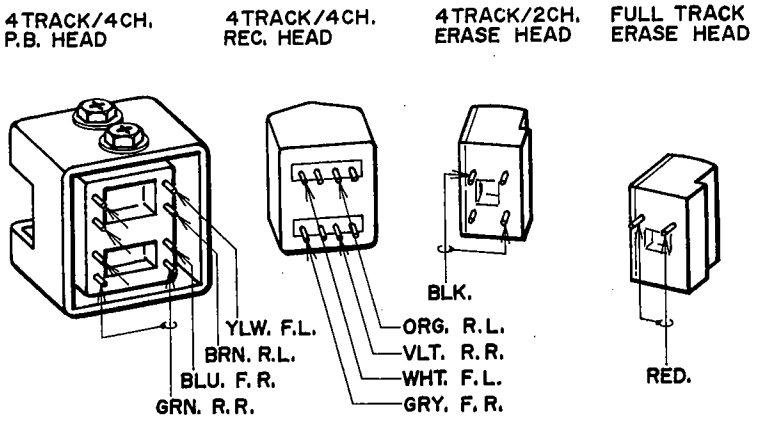


Fig. 15

3. HEAD HEIGHT ADJUSTMENT

1) Full Track Erase Head
   At playback mode, loosen head height control screws (a) (a'), and adjust so that the tape is equi-distant in relation to the protruding top and bottom edges of the full track erase head core (width between top edge of tape and top edge of head core is the same as the distance between the bottom edge of the tape and the bottom edge of the head core).
2) 4-track Erase Head
   At playback mode, loosen head height control screws (b) (b') shown in Fig. 16, and adjust so that the upper edge of the tape is about 0.1 mm lower than the upper edge of the left channel head core of the 4-track erase head.
3) Recording Head
   At playback mode, adjust recording head height by turning head height control screws (c), (d), (e) shown in Fig. 16 to left and right until the upper edge of the tape is the same height as the upper edge of track-1 head core of the recording head. At this time confirm that the lower edge of the tape is also the same height as the lower edge of track-4 head core of the recording head.
4) Playback Head
   With head height control screws (f) (g) (h) shown in Fig. 16, adjust the playback head height in the same way as outlined above for recording head.
5) After the various head height adjustments have been made, confirm that the core side of the heads are at right angles with the chassis during tape travel.

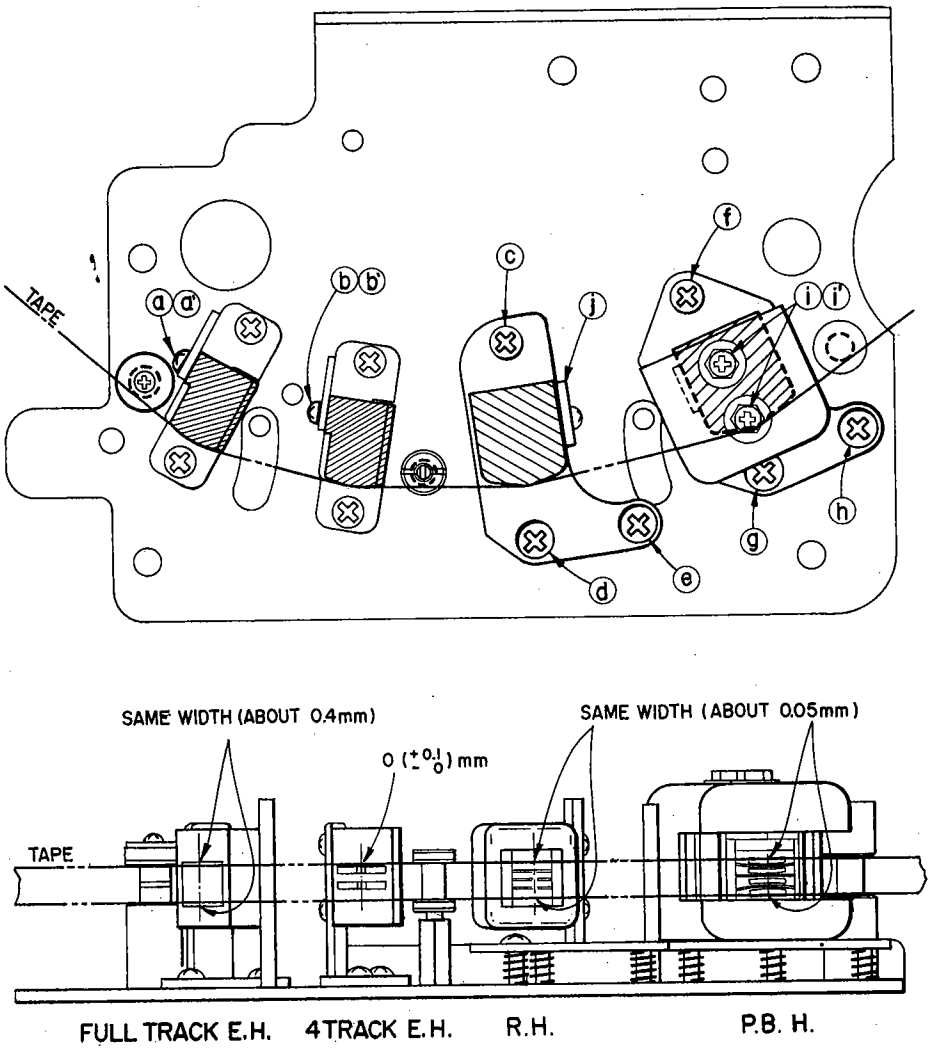


Fig. 16

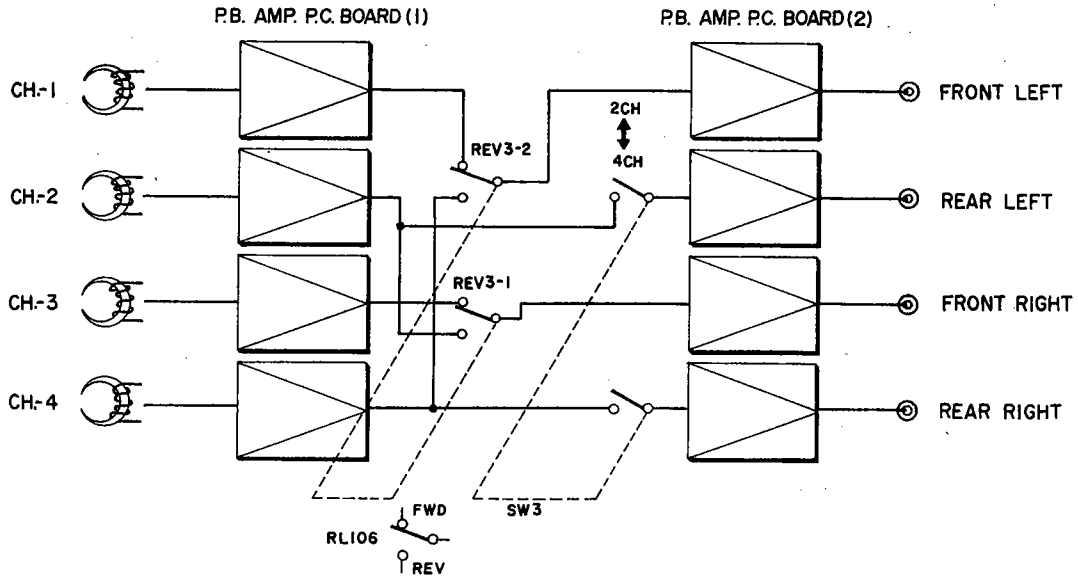
4. HEAD AZIMUTH ALIGNMENT

1) Playback Head
   a. Connect a high sensitivity V.T.V.M. to the line output terminals.
   b. Depress the "7-1/2 ips" Tape Speed Selector Switch, set Monitor Switch to TAPE, and set Stereo Selector to "2 CH" position.
   c. Playback an Alignment Test Tape (8,000 Hz ampex alignment test tape recorded at 3-3/4 ips).
   d. At playback mode, adjust alignment adjustment screw (h) shown in Fig. 16 by turning to left and right until the line output level of both channels is maximum.
   e. After the adjustments outlined in (d) above, loosen screws (i), (i') and move the head gap side of the playback head to left and right until there is no fluctuation in output level (both channels) when tension is applied to the supply reel. Then tighten screws (i) (i') to maintain this position.

2) Recording Head
   a. Connect an Audio Frequency Oscillator to the line input terminals and a high sensitivity V.T.V.M. to the line output terminals and load a blank tape.
   b. Set the Monitor Switch to TAPE position and record a 16,000 Hz signal at −10 dB.
   c. When the above adjustment has been completed, adjust the gap side of the recording head by bending recording head installation angle (i) shown in Fig. 16 to left and right until the line output level (both channels) does not fluctuate when tension is applied to the supply reel.

5. For optimum adjustment, repeat Items 1 and 2 above 2 or 3 times. Blank testing tape should be new tape.

VI. AMPLIFIER ADJUSTMENTS



NOTE; P.B. AMP. P.C. BOARD (1) AND (2) ARE SAME P.C. BOARD MS-5022

Fig. 17

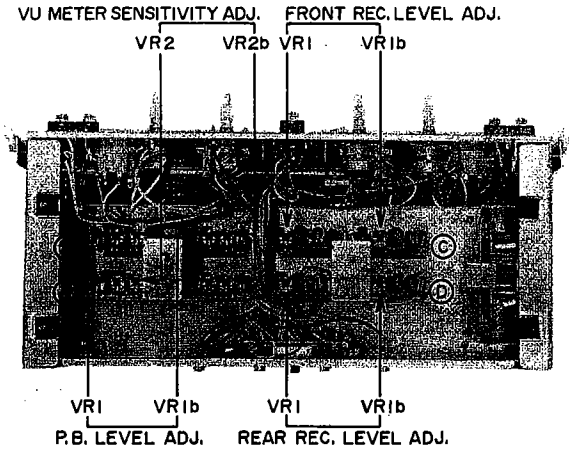


Fig. 18

(A): FRONT P.B. AMP. P.C. BOARD MS-5022
(B): REAR P.B. AMP. P.C. BOARD MS-5022
(C): FRONT REC. AMP. P.C. BOARD MS-5023
(D): REAR P.B. AMP. P.C. BOARD MS-5023
(E): OSC. P.C. BOARD KF-5010

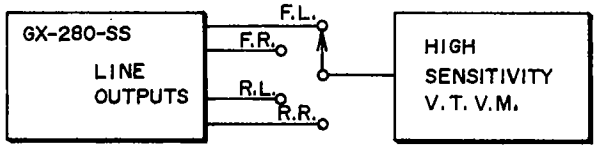


Fig. 19

1. PLAYBACK OUTPUT LEVEL ADJUSTMENT

1) Connect a high sensitivity V.T.V.M. to the line output terminals.
2) Depress "7-1/2 ips" Tape Speed Selector Switch, set Monitor Switch to TAPE, and set Stereo Selector to "4 CH" position.
3) Playback a 250 Hz "0" VU recorded test tape.
4) Adjust P.B. Amp. P.C. Board playback level adjustment semi-fixed resistors VR1 (50 kB) and VR1b (50 kB) shown in Fig. 18 (VR1 front/rear left channel; VR1b front/rear right channel) to obtain a V.T.V.M. indication of 4 dB (1.228V) on each channel.

2. VU METER SENSITIVITY ADJUSTMENT

After every channel adjustment has been completed, adjust P.B. Amp. P.C. Board VU meter sensitivity adjustment semi-fixed resistors VR2 (5 kB) and VR2b (5 kB) shown in Fig. 18 (VR2 front/rear left channel; VR2b front/rear right channel) to obtain a VU meter indication of "0" VU (0 position).

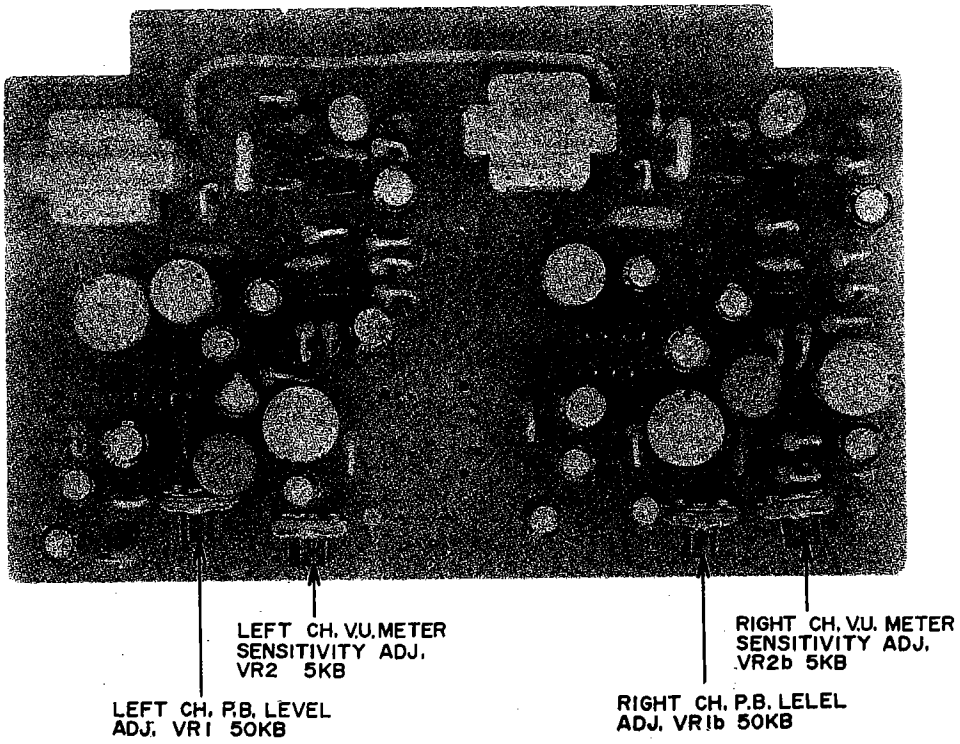


Fig. 20 P.B. AMP. P.C. BOARD (FACE SIDE)

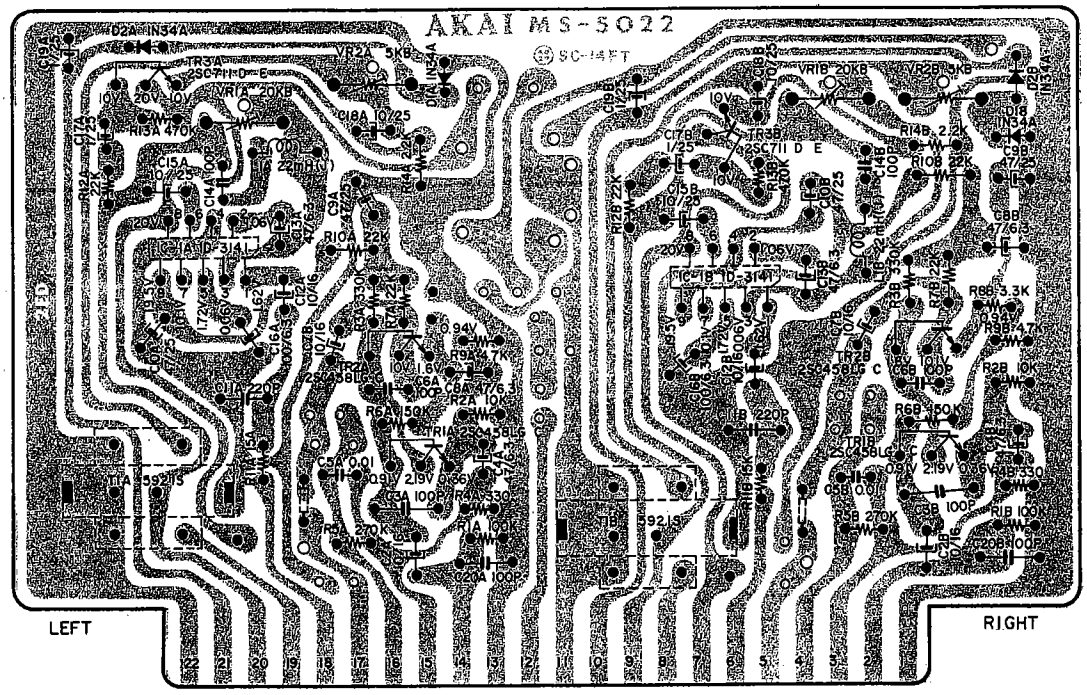


Fig. 21 P.B. AMP. P.C. BOARD MS-5022 (REVERSE SIDE)

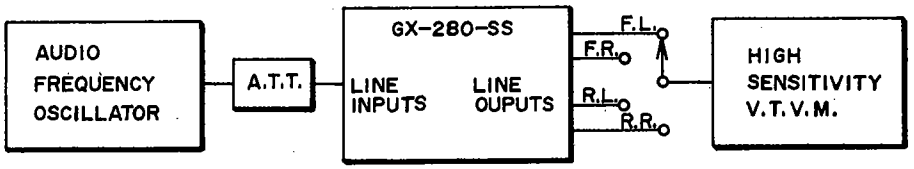


Fig. 22

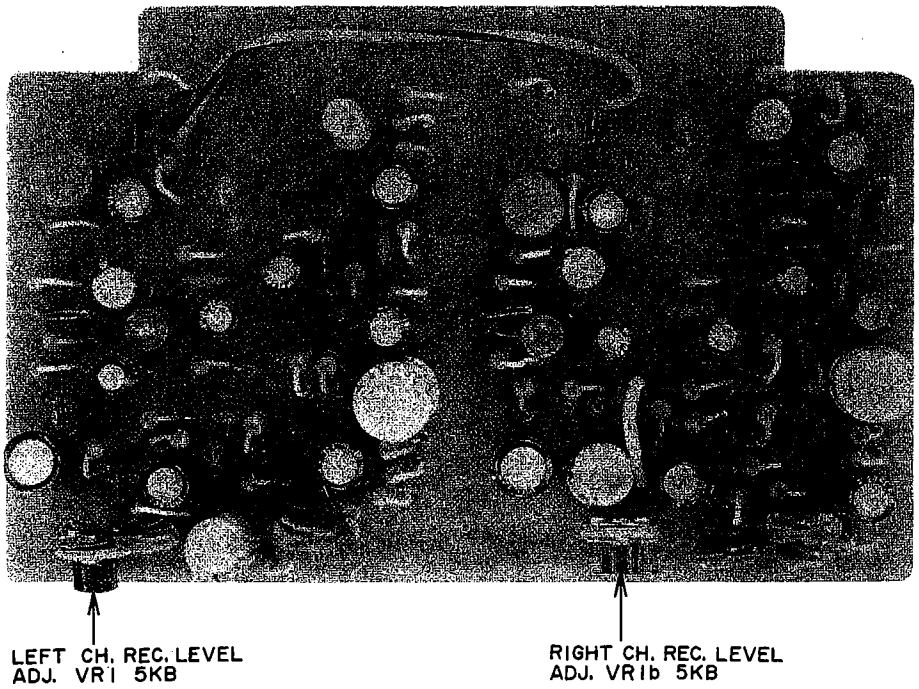


Fig. 23 REC. AMP. P.C. BOARD (FACE SIDE)

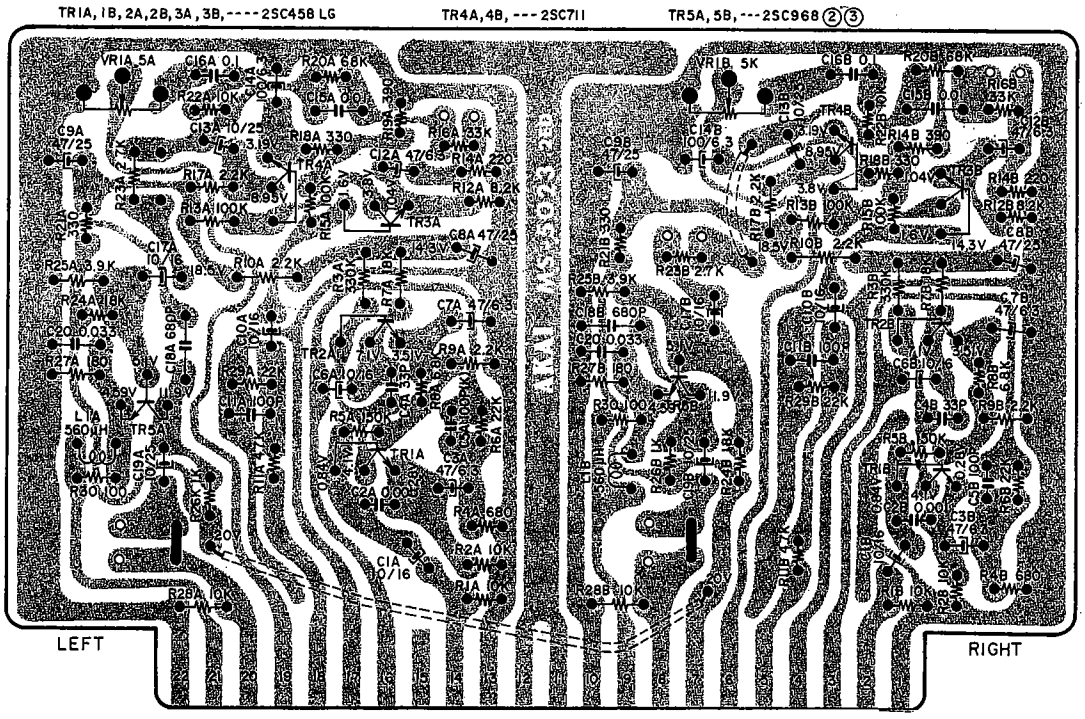


Fig. 24 REC. AMP. P.C. BOARD MS-5023 (REVERSE SIDE)

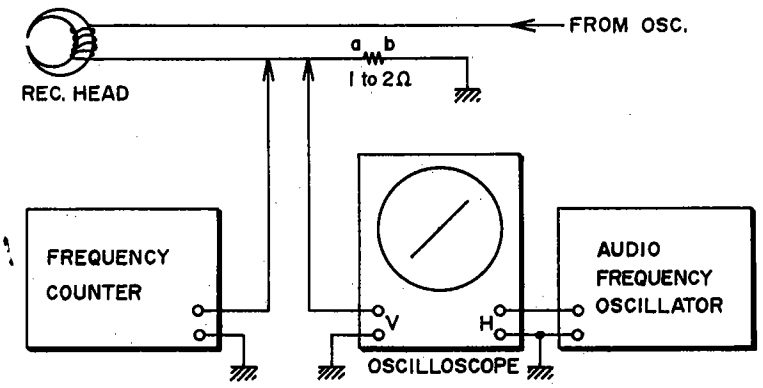


Fig. 25

3. RECORDING LEVEL ADJUSTMENT

1) Connect an Audio Frequency Oscillator to the line input terminals through an attenuator and connect a high sensitivity V.T.V.M. to the line output terminals.
2) Depress the "7-1/2 ips" Tape Speed Selector Switch and set the Stereo Selector to "4-CH" position.
3) Set line recording level controls to maximum and load a Scotch #111 blank tape.
4) Set the Monitor Switch to TAPE position and set the tape deck to recording mode. Supply a 1,000 Hz signal from the Audio Frequency Oscillator, and adjust the attenuator to obtain a V.T.V.M. indication of 4 dB (1.228V).
5) Set the Monitor Switch to SOURCE position, and adjust REC. Amp. P.C. Board recording level adjustment semi-fixed resistor VR1 (5 kB) and VR1b (5 kB) shown in Fig. 18 (VR1 front/rear left channel; VR1b front/rear right channel) to obtain a line output level of 4 dB on each channel.

4. RECORDING BIAS FREQUENCY MEASURING METHOD AND ADJUSTMENT

MEASURING METHOD:

Method 1

1) As shown in Fig. 25, install a 1 to 2Ω resistor in series with the recording head and connect both of these terminals (a) and (b) to the vertical input of the oscilloscope and set deck to recording mode.
2) Supply a sine wave to the horizontal input of the oscilloscope from the Audio Frequency Oscillator.
3) Vary the oscillation frequency of the audio frequency oscillator until the oscilloscope waveform displays a circular or linear pattern.
4) If the oscillation frequency indication is within 100 to 110 kHz when a circular or linear pattern is displayed, the recording bias frequency is correct.

Method 2

1) Connect a Frequency Counter to both terminals (a) and (b) as shown in Fig. 25. Set deck to recording mode and take a frequency counter reading.
2) If the frequency counter indication at this time is within 100 to 110 kHz, the recording bias frequency is correct.

ADJUSTMENT

The recording bias frequency can be adjusted by changing the value of OSC. P.C. Board condenser C4 (4500P/500 WV) shown in Fig. 26.

5. RECORDING BIAS VOLTAGE ADJUSTMENT (Frequency Response Adjustment)

1) Connect the various measuring instruments in the same way as outlined in "Recording Level Adjustment" procedure.
2) Follow Recording Level Adjustment procedure through Item 4 and set the attenuator to −20 dB.
3) Under these conditions, adjust OSC. P.C. Board recording bias voltage adjustment trimmer condensers TC1 (front left), TC2 (front right), TC3 (rear right), and TC4 (rear left) 70P shown in Fig. 26 to obtain an equally flat frequency response at 1,000 Hz and 10,000 Hz.
4) After frequency response adjustment is completed, the recording bias voltage is within 2 to 5V A.C.
5) Proper erase voltage is within 65 to 70V A.C.

NOTE: Frequency response will vary depending upon the tape being used. (As a general rule, AKAI 100F (Fuji F) tape is used.

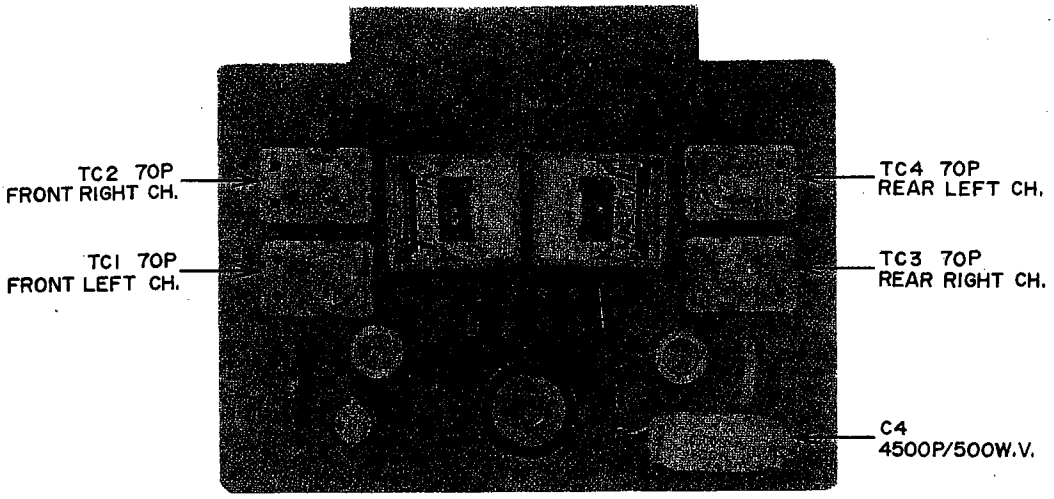


Fig. 26 OSC. P.C. BOARD (FACE SIDE)

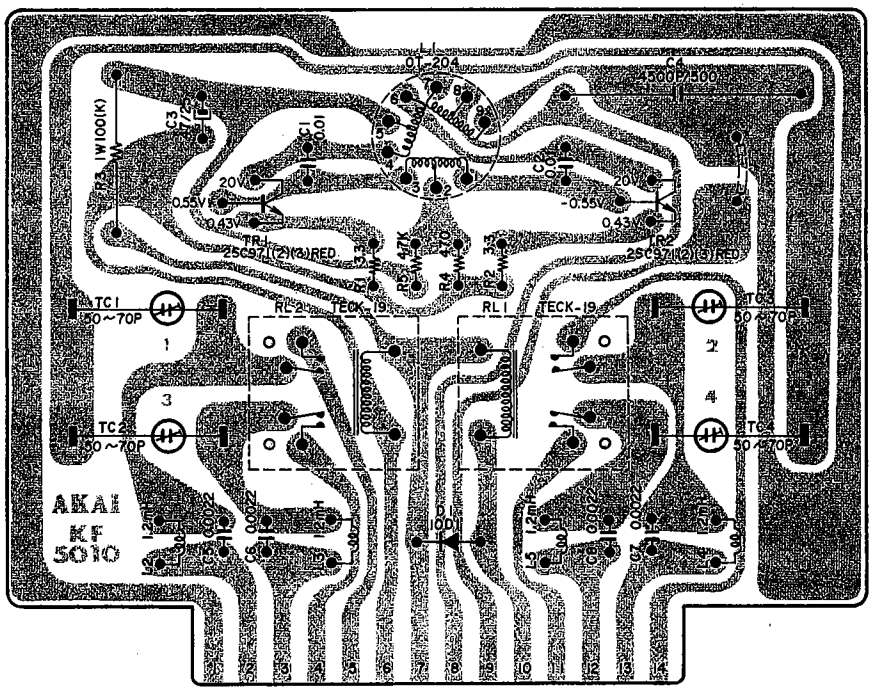


Fig. 27 OSC. P.C. BOARD KF-5010 (REVERSE SIDE)

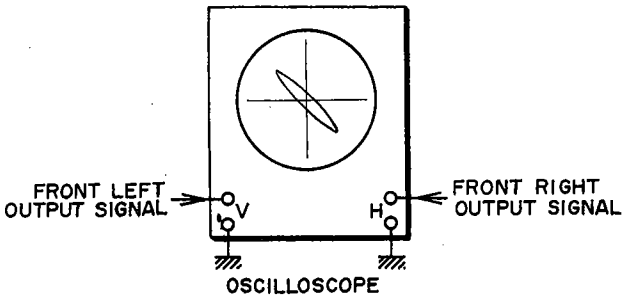
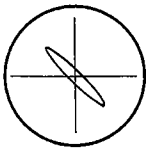
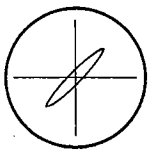


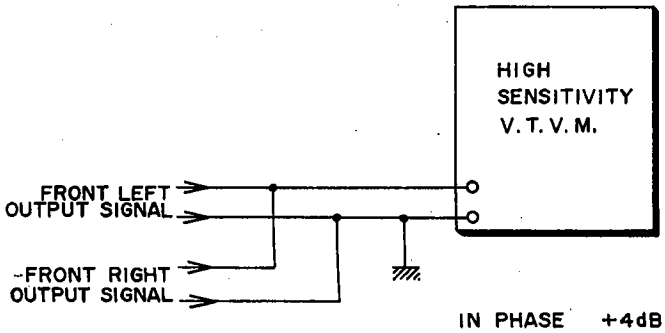
Fig. 28



IN PHASE Fig. 29



OUT-OF PHASE Fig. 30



IN PHASE +4dB
OUT-OF PHASE −5dB Fig. 31

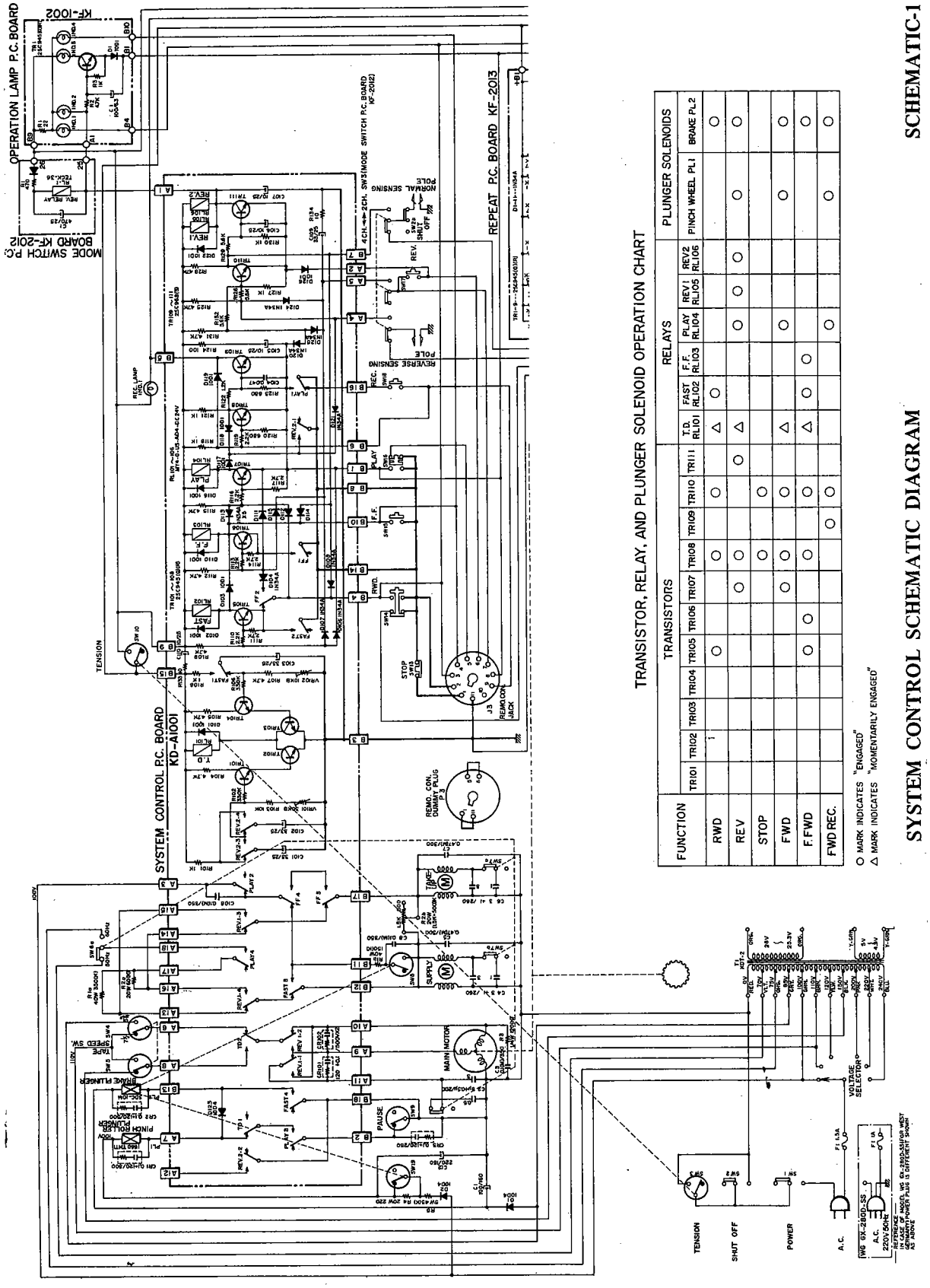
6. 4-CHANNEL PHASE CHECK

Method A

1) Connect front left signal and front right signal from the line output terminal to vertical and horizontal input terminal of Oscilloscope. (See Fig. 28)
2) Playback a 250 HZ "0" VU pre-recorded test tape at 7-1/2 ips.
3) If front left and front right are In-Phase, the waveform as shown in Fig. 29 will appear on the oscilloscope screen.
4) If phase is 180° out of phase, a waveform as shown if Fig. 30 will appear on the oscilloscope screen.
5) Make the same check on front left/rear left and rear left/rear right.
6) The line outputs should be In-Phase, if not, Recording/Playback Head needs adjusting.

Method B (See Fig. 31)

1) Playback a 250 Hz "0" VU pre-recorded test tape at 7-1/2 ips.
2) Connect front left signal and front right signal of line output terminals in parallel and connect this to a high sensitivity V.T.V.M. (Model 161A).
3) If In-Phase, the line output will be about +4 dB.
4) At 180° out of phase, the line output will be about −5 dB.
5) Make the same check on front left/rear left and rear left/rear right.



TRANSISTOR, RELAY, AND PLUNGER SOLENOID OPERATION CHART

FUNCTION	TRANSISTORS										RELAYS						PLUNGER SOLENOIDS	
	TR101	TR102	TR103	TR104	TR105	TR106	TR107	TR108	TR109	TR110	TR111	T.D. RL101	FAST RL102	F.F. RL103	PLAY RL104	REV1 RL105	REV2 RL106	PINCH WHEEL PL1	BRAKE PL2
RWD					○			○		○		△	○						○
REV							○	○			○	△			○	○	○	○	○
STOP								○		○									
FWD							○	○		○		△			○			○	○
F.FWD					○	○		○		○		△	○	○					○
FWD REC.									○	○					○			○	○

○ MARK INDICATES "ENGAGED"
△ MARK INDICATES "MOMENTARILY ENGAGED"

SCHEMATIC-1

SYSTEM CONTROL SCHEMATIC DIAGRAM

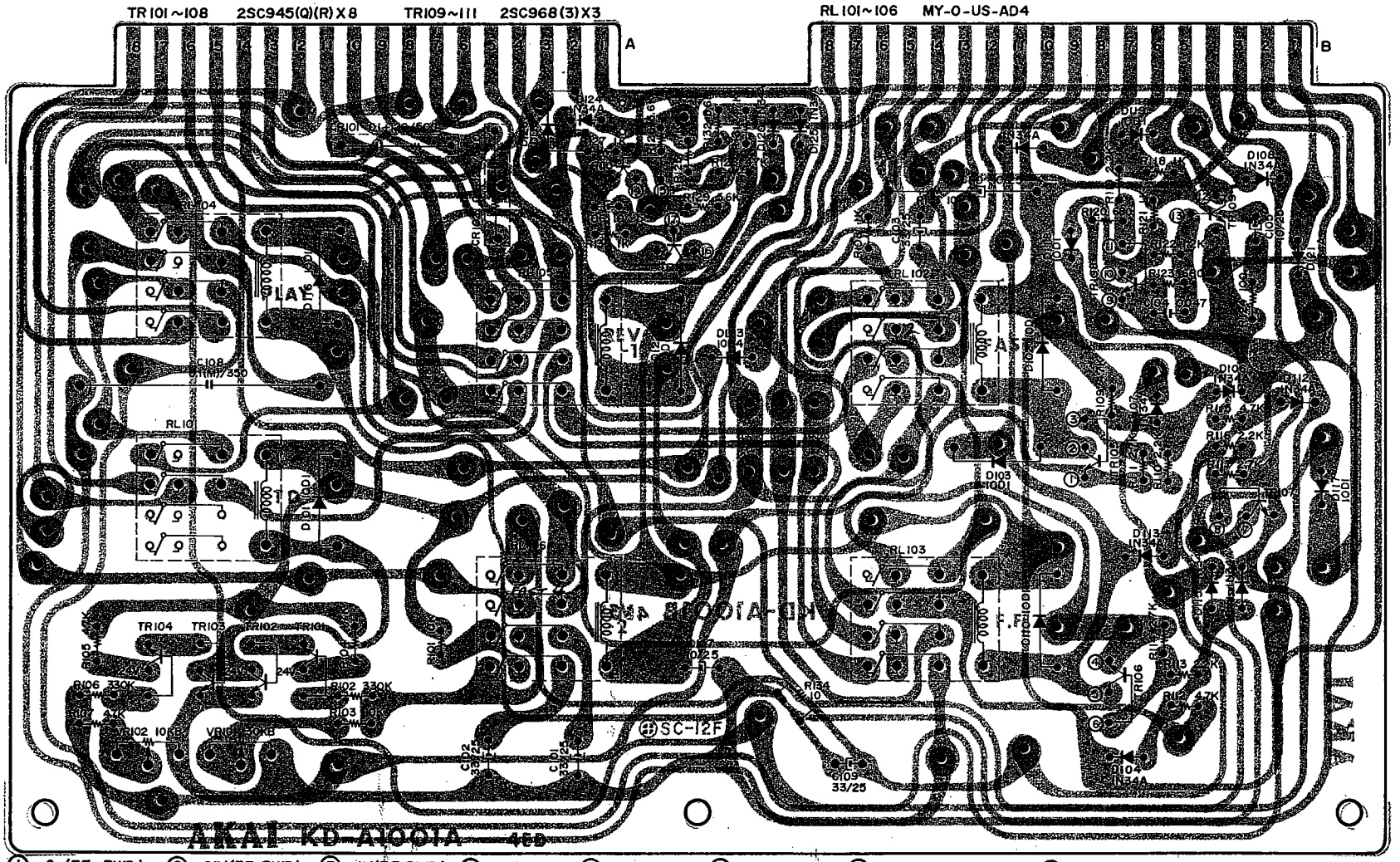


Fig. 32 SYSTEM CONTROL P.C. BOARD KA-1001 (REVERSE SIDE)

1. FROM STOP TO FORWARD PLAYBACK

When the FWD Button is depressed, TR107 emitter is grounded, and TR107 passes RL104 and is turned on. TR107 is maintained at "on" by RL104 contact point Play-1.

The Pinch Roller Plunger and Brake Plunger current passes Play-3 and is turned on. The voltage passes Play-4 and is divided by means of R1a (350Ω) and R2a (60Ω). About 55V (60V 60Hz) is supplied to the Take-up Motor and about 30V (35V 60Hz) to the Supply Motor. At 7-1/2 ips, 110V is applied to the Main Motor and at 3-3/4 ips, 85V is applied to the Main Motor.

At Forward Playback, TR110 is turned on, and TR111 is turned off. C101 of T.D. Circuit passes R101 and is charged.

2. 2-CHANNEL AUTOMATIC REVERSE PLAYBACK

1) From Forward to Reverse Playback

When the Reverse Button is depressed or when the sensing tape passes the sensing pole, TR110 is turned off and TR111 is turned on. Consequently, RL105, RL106, and RL1 of Switch P.C. Board is turned on. When RL106 is momentarily turned on, C101 passes R103 and VR101 and discharge begins. C101 discharge current flows to the base of TR101 and TR102 and they are turned on. When this occurs, RL101 is turned on, and Brake Plunger as well as Pinch Roller Plunger is turned off. At this time, the capstan motor begins reverse revolutions. (While RL101 is "on", because increased torque is applied to the capstan motor, high voltage is applied.)

When discharge of C101 is completed, TR101 and TR102 are turned off. RL101 is also turned off and voltage is supplied to the Pinch Roller Plunger as well as to the Brake Plunger and playback is effected.

2) From Reverse to Forward Play

When the FWD Button is depressed or the sensing tape passes the sensing pole, TR111 is turned off, and TR110 is turned on. Because TR111 is turned off, RL105 and RL106 as well as RL1 are turned off. When RL106 is momentarily turned off, C102 passes R103 and VR101 and discharge commences. C102 discharge current flows to the base of TR101 and TR102 and they are turned on. When this occurs, RL101 is turned on and the Brake Plunger as well as the Pinch Roller Plunger are turned off. At this time, the capstan motor begins forward revolutions. (While RL101 is "on", because increased torque is applied to the capstan motor, high voltage is applied.)

When discharge of C102 is completed, TR101 and TR102 is also turned off and voltage is supplied to the Pinch Roller Plunger as well as to the Brake Plunger and Forward Playback is effected. Charge of C101 is begun. (If Shut-off Switch is at "on" position, this operation will not take place.)

3. FAST FORWARD

When the Fast Forward Button is depressed, current flows to RL102 and RL103. At the same time, TR105 and TR106 is maintained at "on", and Fast Forward operates. 100V is applied to the Take-up Motor and about 12V to the Supply Motor.

When Fast Forward is effected from Forward Playback, DR113 is activated and cuts off TR107.

When Fast Forward is effected from Reverse Playback, D114 is activated and cuts off TR111.

When Fast Forward is effected from Rewind, TR105 remains "on", TR106 operates and RL103 is turned on.

4. REWIND

When the Rewind Button is depressed, TR105 is turned on. TR105 is maintained at "on" by means of RL102. 100V is applied to the Supply Motor and about 11V to the Take-up Motor.

When Rewind is effected from Forward Playback, D112 is activated and cuts off TR107.

When Rewind is effected from Reverse Playback, D108 is activated and cuts off TR111.

When Rewind is effected from Fast Forward, D104 is activated and cuts off TR105.

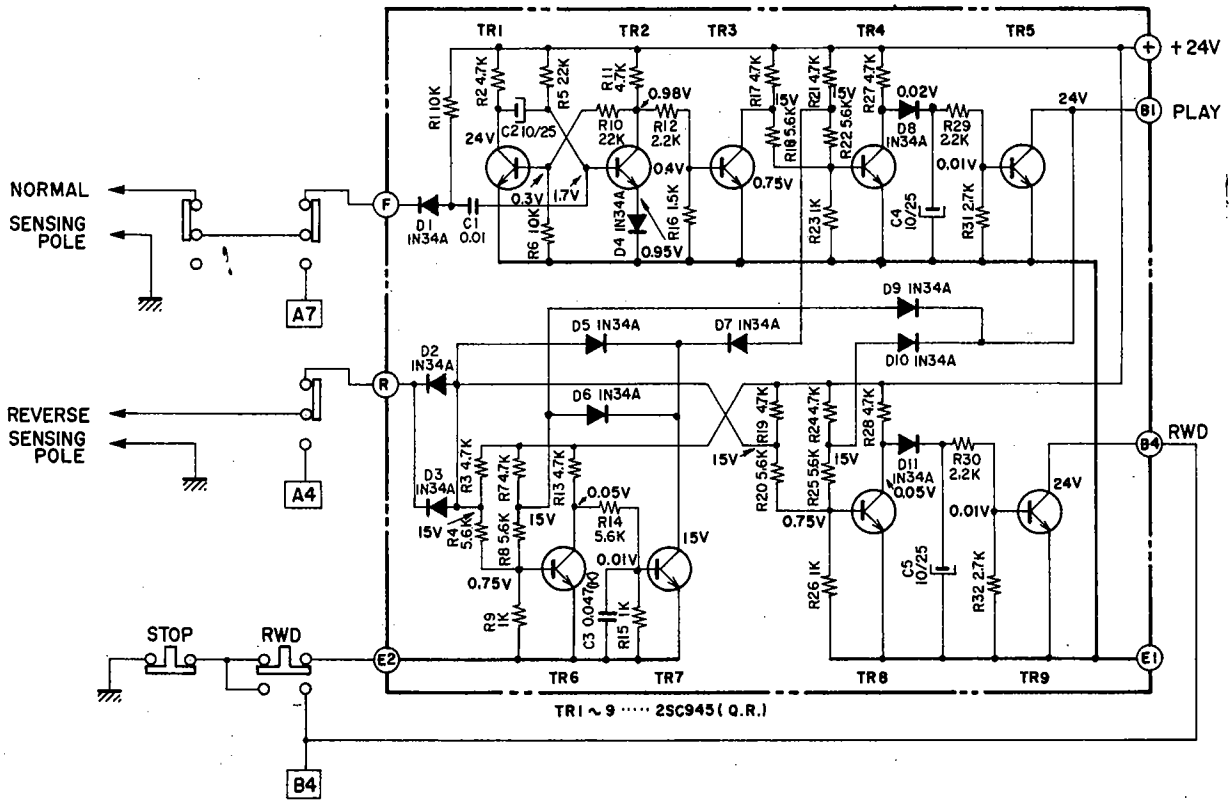


Fig. 33 4-CHANNEL REPEAT CIRCUIT

	TR105	TR107	TR1	TR2	TR3	TR4	TR5	TR6	TR7	TR8	TR9
Forward Play	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF
Repeat (sensing tape passed reverse sensing pole)	ON	OFF	OFF	ON	OFF	ON	OFF	OFF	ON	OFF	ON
Stop the Forward Play	OFF	ON	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON
(sensing tape passed forward sensing pole)	OFF	ON	OFF	ON	OFF	ON	OFF	OFF	ON	ON	OFF

Chart 2

5. 4-CHANNEL REPEAT CIRCUIT

(See Figs. 33 and Chart 2)

When the Stereo Selector is set to 4-channel position, Syscon Board [A7] and [A4] are opened. When during Forward Playback, the sensing tape passes the reverse sensing pole, TR6 is turned off and TR7 is turned on. At this time, TR4 is "on" and TR5 is turned off. Further, because TR8 is "off" and TR9 "on", [B4] is grounded and at the same time, TR107 is turned off. TR105 is turned on and because it passes RL102 is held at "on". Consequently, Rewind mode is attained and the tape begins to rewind.

When the sensing tape passes the Forward sensing pole, D1 is grounded, TR1 is turned on, TR2 is turned off, and TR3 is turned on. Thus, TR4 which has been on up to now is turned off and TR5 is turned from off to on. Because TR5 is on, the unit operates in the same was as if the Forward Button had been depressed (TR107 is turned on, and TR105 is turned off. Consequently, Forward Play commences.). Because sensing tape is affixed at both ends, repeat mode is continuous (Play-Rewind-Play). Rewind and Stop can be effected by depressing the Rewind Button during Repeat Mode. When the Rewind Button is depressed, TR6 is turned on and TR7 is turned off. For this reason, TR4 is maintained at "on". Although Pin D1 is grounded, and TR1 is turned on, TR2 off, and TR3 on, because TR4 is held at "on", and TR5 is turned off, the machine will not enter Forward Play.

VIII. SERVO MOTOR OPERATING PRINCIPLES

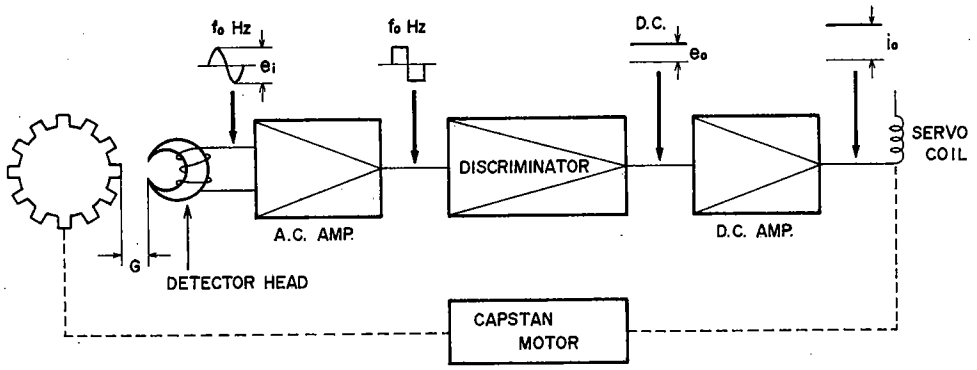


Fig. 34

G (Gap): Adjust to obtain a detector head terminal voltage of 3 ±0.5 mV at 7-1/2 ips.

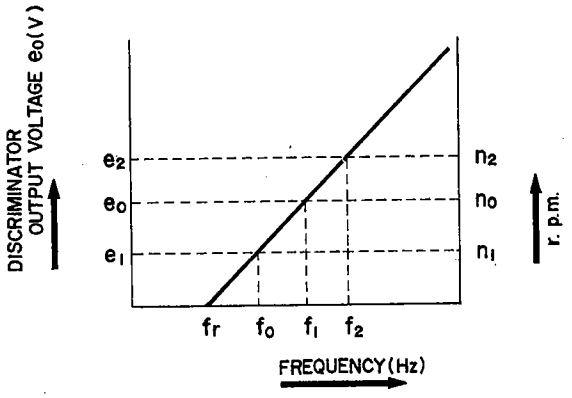


Fig. 35

1. The detector head core is comprised of a permanent magnet, and the gear installated on the motor, by magnet, and the gear installed on the motor, by the magnetic flux of the detector head core. Accordingly, the detector head coil works in the same way and generates A.C. Voltage (becomes the detector signal described below). When this detector signal voltage (e_i) becomes detector signal frequency (f_o), this adjusts the capstan motor revolutions proportionately. (See Figs. 34 & 35)

2. When the detector signal voltage generated from the detector head is about 3 mV (at 7-1/2 ips), because the level is low, the perpendicular (up and down) waveform is amplified by the A.C. Amplifier until the waveform is clipped. (See Fig. 34)

3. Discriminator Coil L1 (VI2031SC-01) and C210 (0.051/50) at 7-1/2 ips and C211 (0.27/100) at 3-3/4 ips constitute the resonance circuit, and this resonance frequency becomes f_r. Because the detector signal frequency generated at the detector coil differs according to capstan motor revolutions, the capacity of the discriminator resonance condenser changes and the resonance frequency changes at the different tape speeds of 7-1/2 and 3-3/4 ips.

4. When the discriminator input frequency and the resonance frequency f_r are simultaneous, the D.C. signal to be supplied to the next stage D.C. Amplifier is not generated. Consequently, when the capstan motor rotates at normal speed, a higher than resonance frequency f_r, detector signal. Signal frequency f_o is established.

5. As shown in Chart 3, when electric current is not flowing to the capstan motor servo coil, the capstan motor revolutions are far faster than normal revolutions. Consequently, in order to maintain normal revolutions, an electro-magnetic field is generated at the servo coil by means of collector current flowing to TR-209 (2SD234), and this serves as an electro-magnetic brake. This electro-magnetic brake and the load torque balances the capstan motor torque and normal revolutions are maintained.

	Capstan Motor Supply Voltage	Capstan Motor Supply Voltage at FWD or REV Starting Time	Voltage and Frequency Generated at the Detector Coil	Controlled Capstan Motor Speed	Uncontrolled Capstan Motor Speed
7-1/2 ips	110V	150V	3mV±0.5mV r.m.s./1040Hz	520 r.p.m.	1,420 r.p.m.
3-3/4 ips	85V	110V	1.5mV±0.25mV r.m.s./520Hz	260 r.p.m.	1,380 r.p.m.

Chart 3

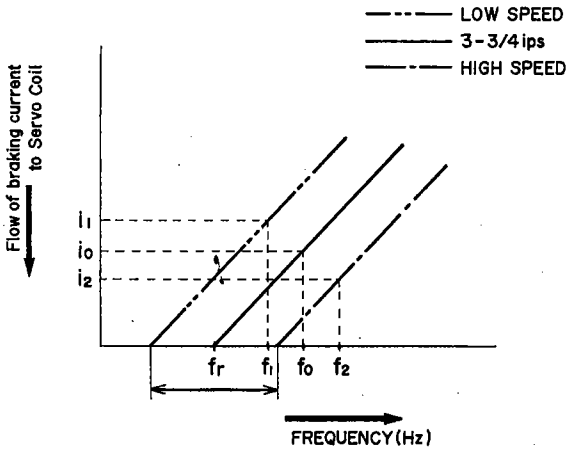


Fig. 36

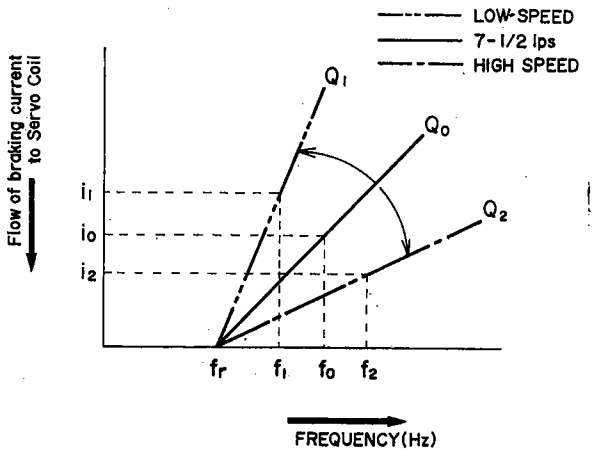


Fig. 37

6. In case of the capstan motor revolutions having reached the speed of n_2, the detector signal produced at the detector coil surpasses f_o and advances toward the higher f_2 frequency. (See Figs. 36 & 37) Accordingly, the flow of current to the servo coil increases, and because the electro-magnetic braking supplied to the capstan motor is increased, the capstan motor revolutions become slower, and normal revolutions are regained.

7. In case of the capstan motor revolutions having slowed to n_1, the detector signal produced at the detector coil drops to lower than f_o and descends toward the low f_1 frequency (See Figs. 36 & 37). Accordingly, the flow of current to the servo coil decreases, and because the electro-magnetic braking supplied to the capstan motor is decreased, the capstan motor revolutions speed up and normal revolutions are regained.

8. To obtain the proper number of revolutions, adjustment of the flow of brake current to the servo coil is necessary.

   1) At 3-3/4 ips tape speed
   As shown in Fig. 36, resonance frequency f_r (between the arrow mark) is changed by adjusting the dust core of discriminator coil L1 (VI2031SC-01). Accordingly, f_o is also changed between f_1 and f_2, and the flow of braking current (i_o) to the servo coil is also changed between i_1 and i_2. Consequently, correct tape speed can be attained by using a tape speed measuring tape and a Frequency Counter and adjusting the dust core of coil L1.

   2) At 7-1/2 ips tape speed
   As shown in Fig. 37, Q_o of the resonance circuit (within the arrow mark with f_r as center frequency) is changed by adjusting discriminator semi-fixed resistor VR202 (5 kB). Therefore, f_o is also changed between f_1 and f_2 and, the flow of current (i_o) to the servo coil is also changed between i_1 and i_2. Consequently, correct tape speed can be attained by using a tape speed measuring tape and a Frequency Counter and adjusting semi-fixed resistor VR202.

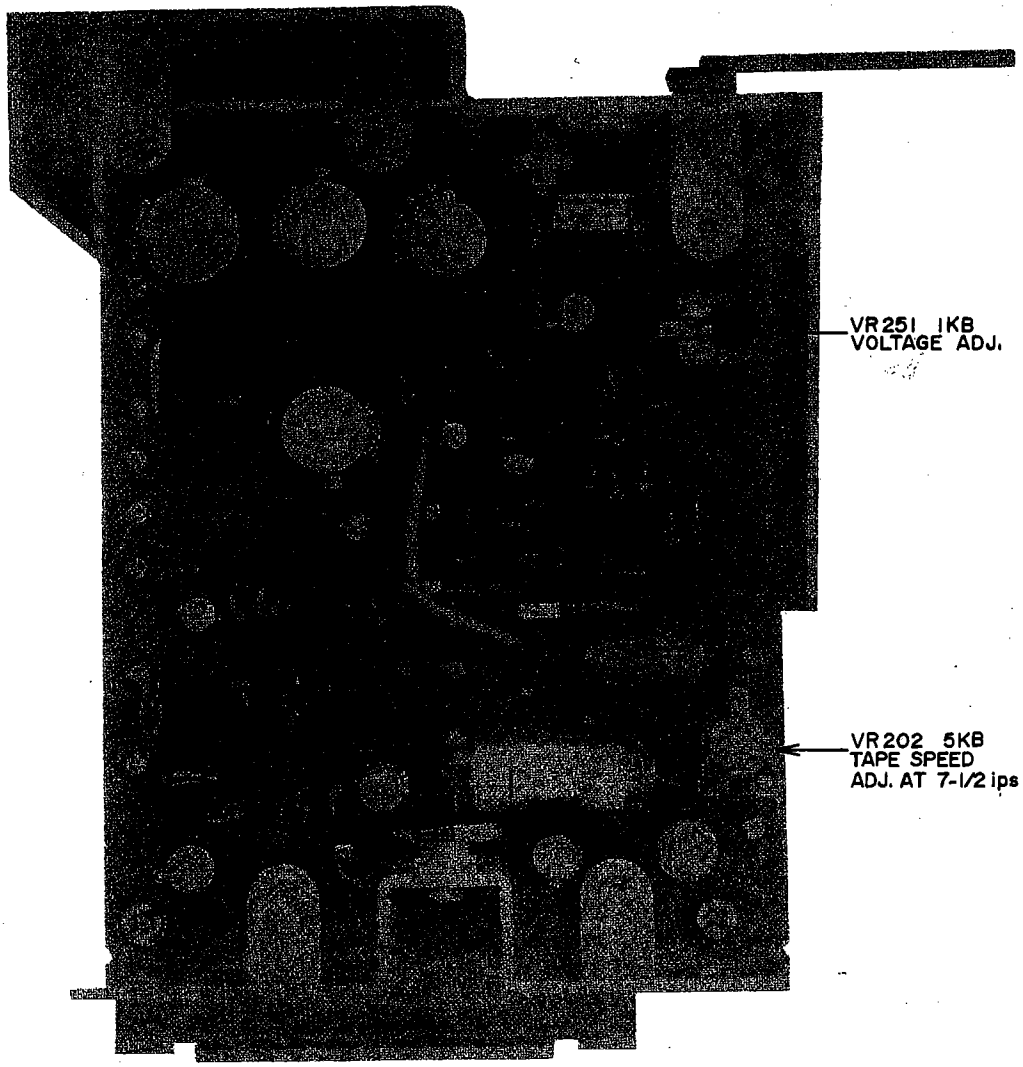


Fig. 38 SERVO CONTROL AMP. & POWER SUPPLY P.C. BOARD (FACE SIDE)

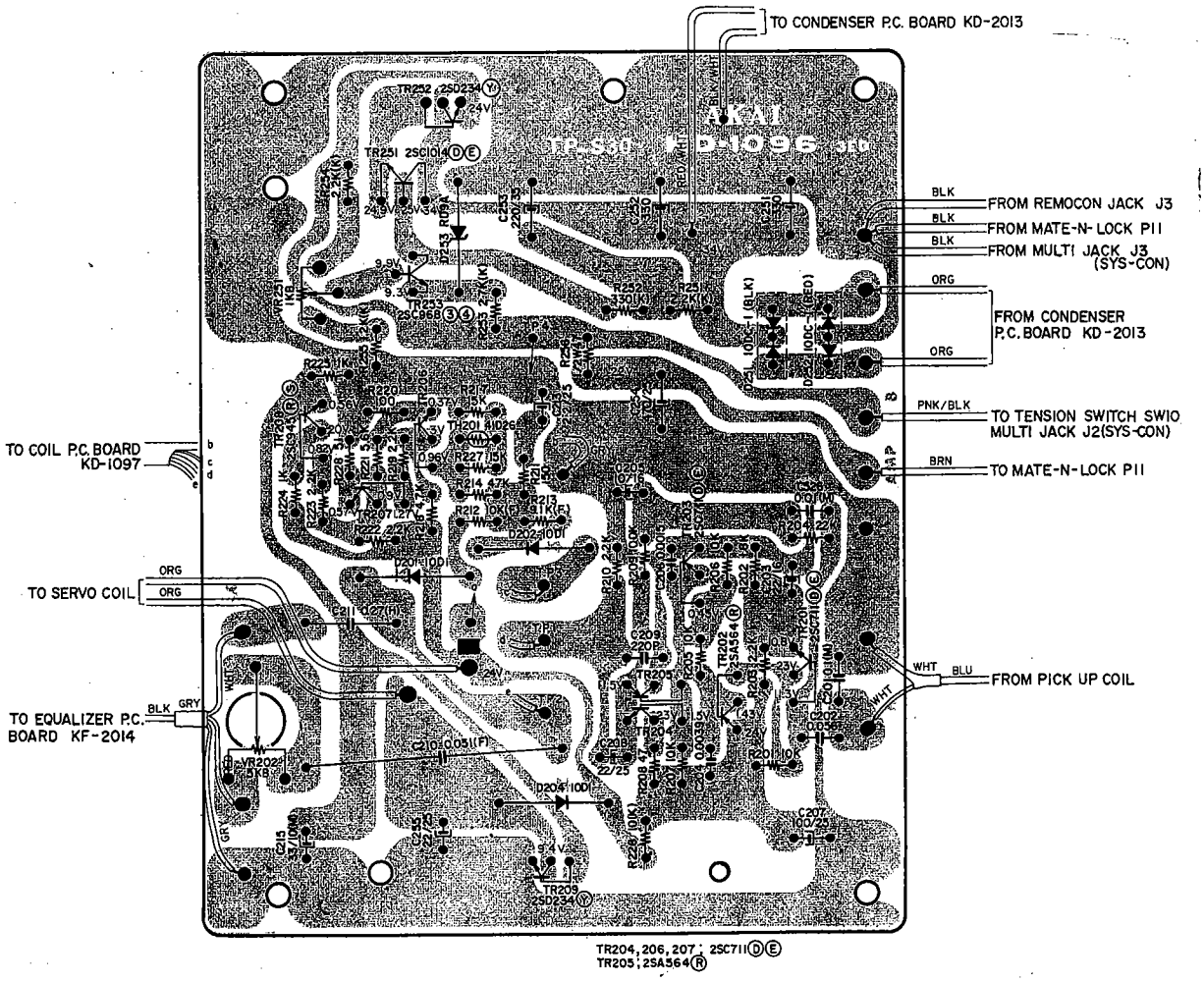


Fig. 39 SERVO CONTROL AMP. & POWER SUPPLY P.C. BOARD KD-1096 (REVERSE SIDE)

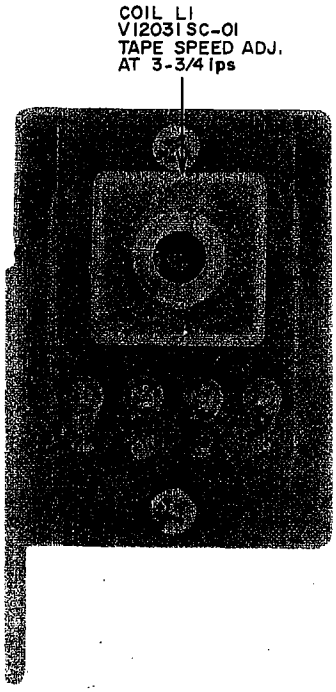


Fig. 40 COIL P.C. BOARD (FACE SIDE)

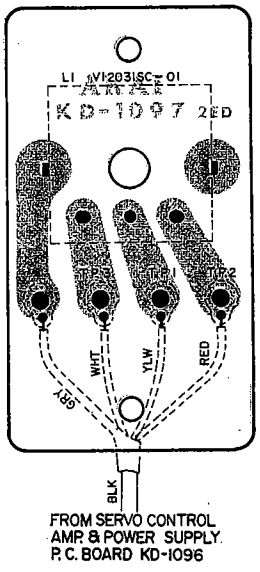
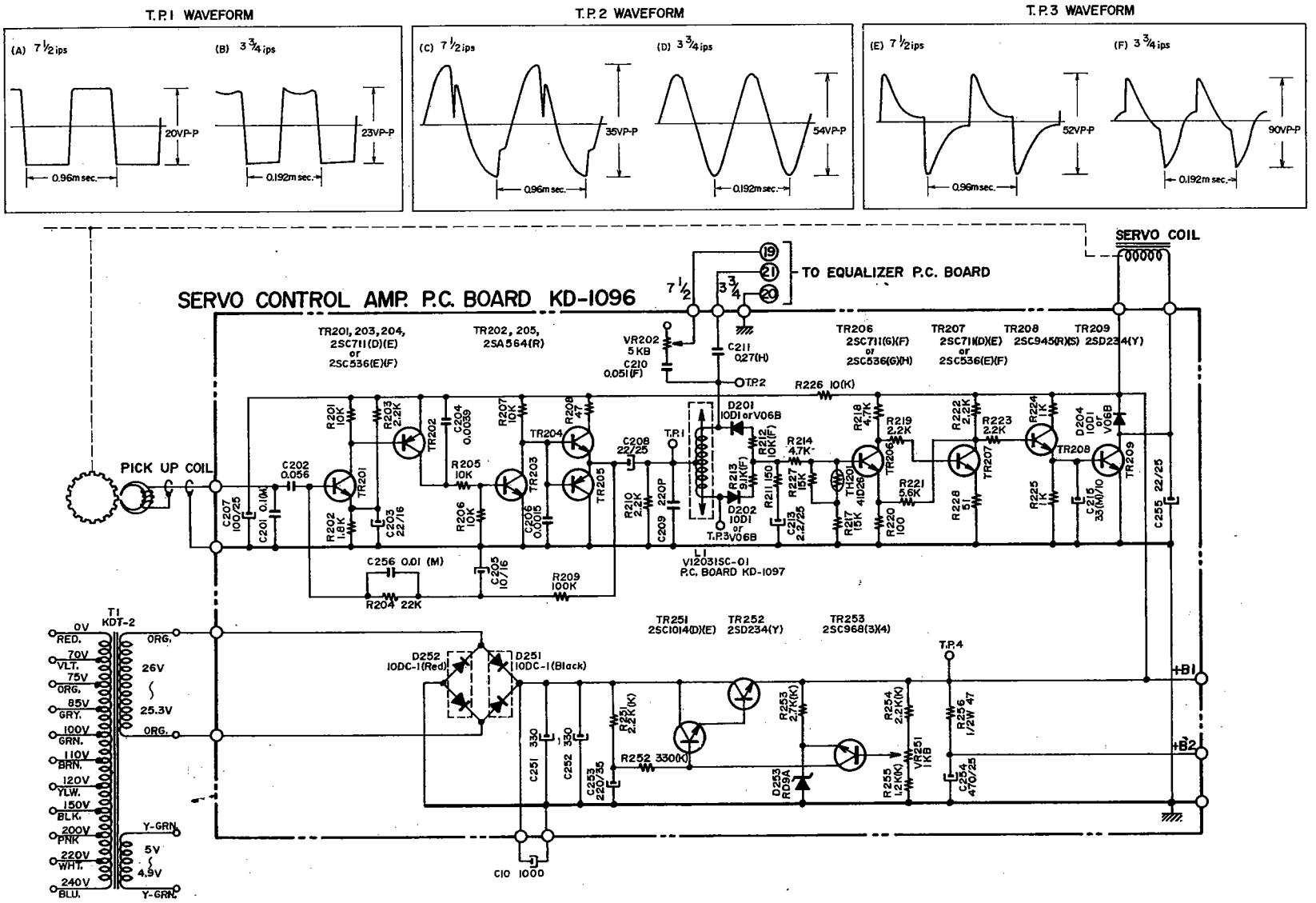


Fig. 41 COIL P.C. BOARD KD-1097(REVERSE SIDE)

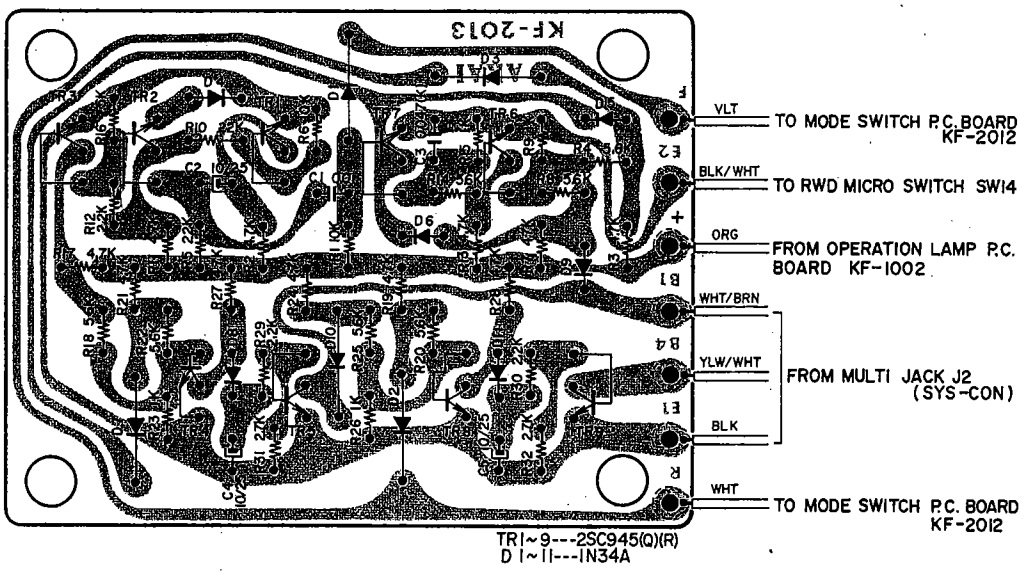


SERVO CONTROL AMP. & POWER SUPPLY SCHEMATIC

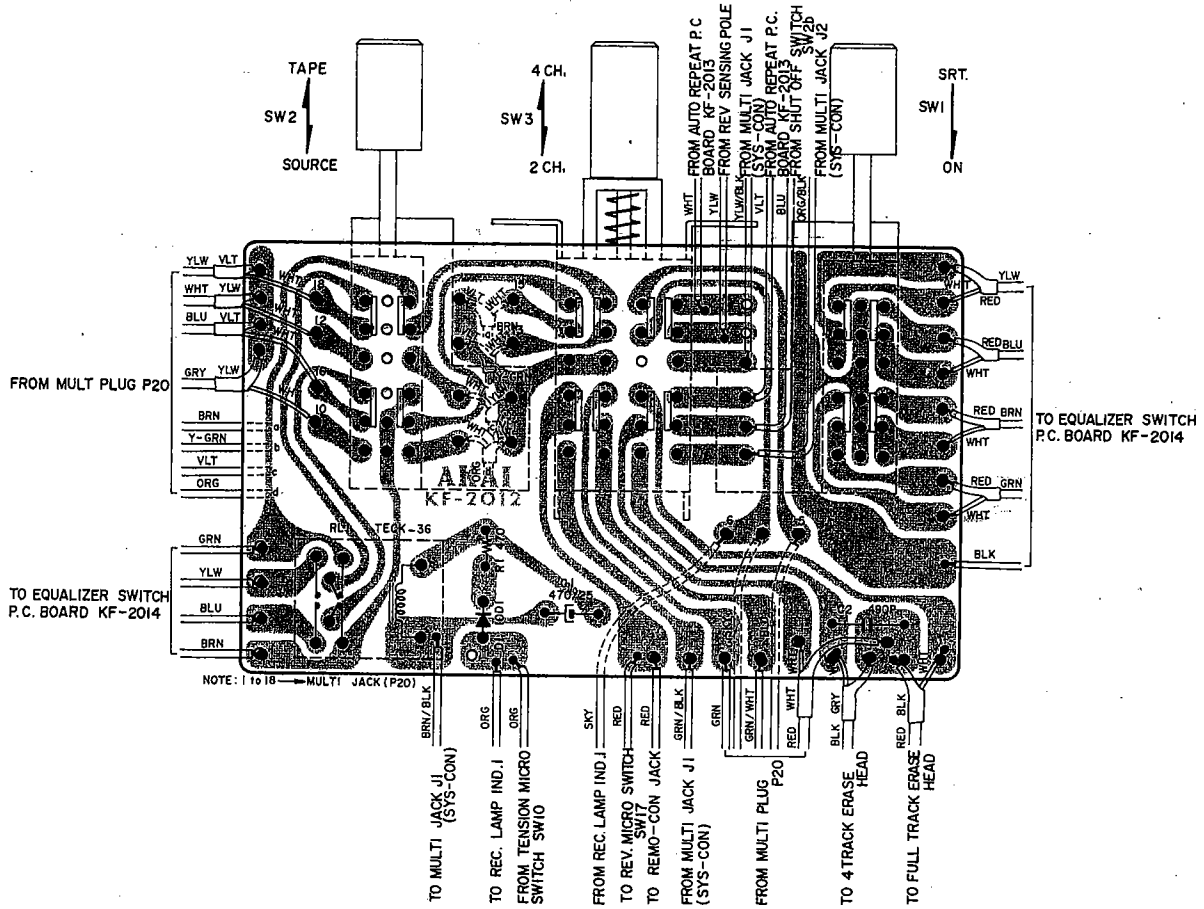
SCHEMATIC-2

IX. COMPOSITE VIEWS OF COMPONENTS

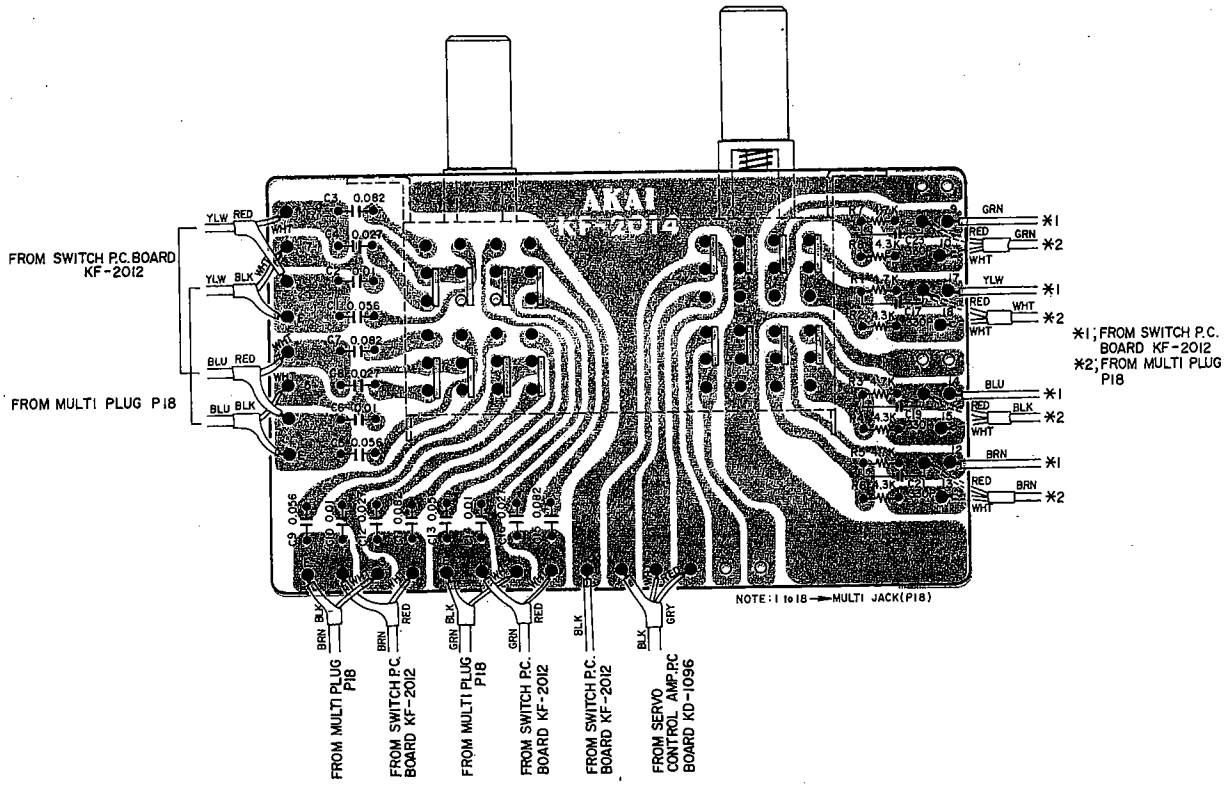
1. AUTO REPEAT P.C. BOARD KF-2013



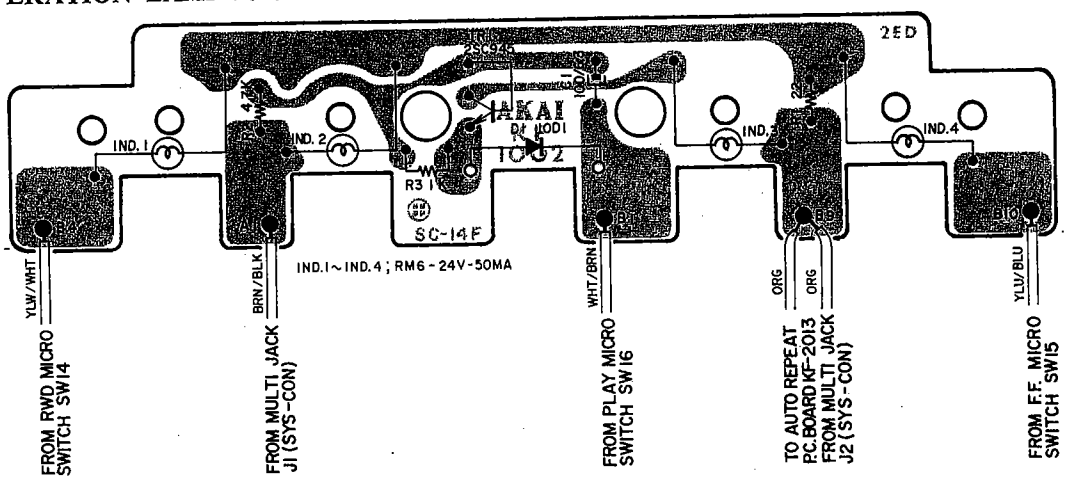
2. SWITCH P.C. BOARD KF-2012



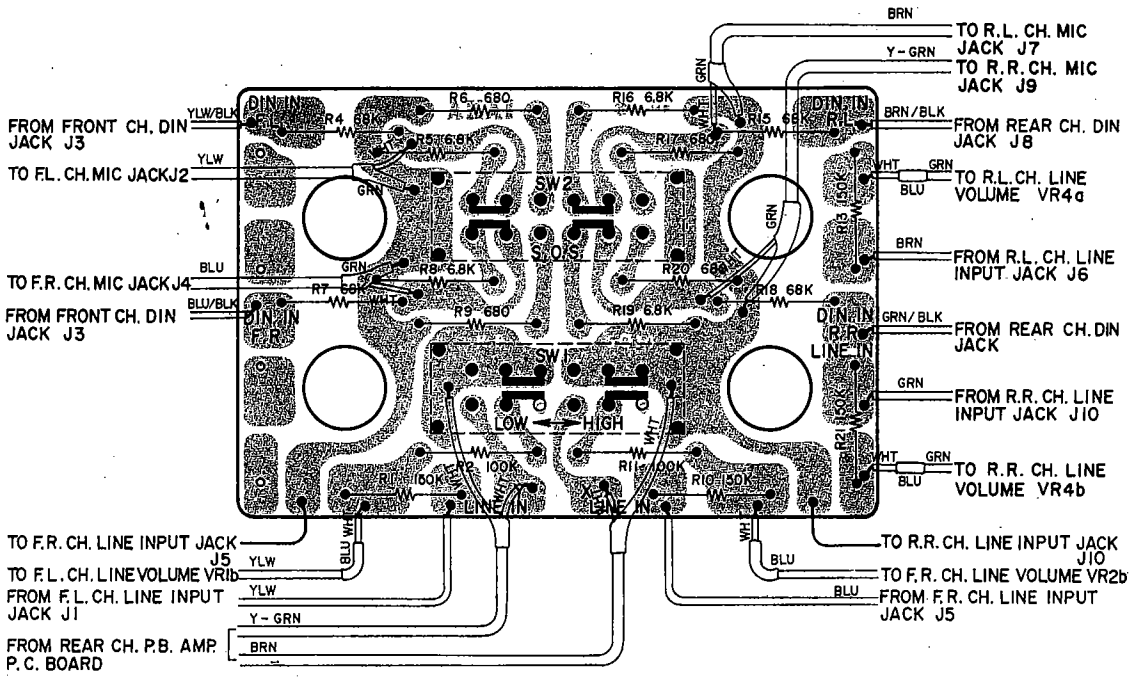
3. EQUALIZER P.C. BOARD KF-2014



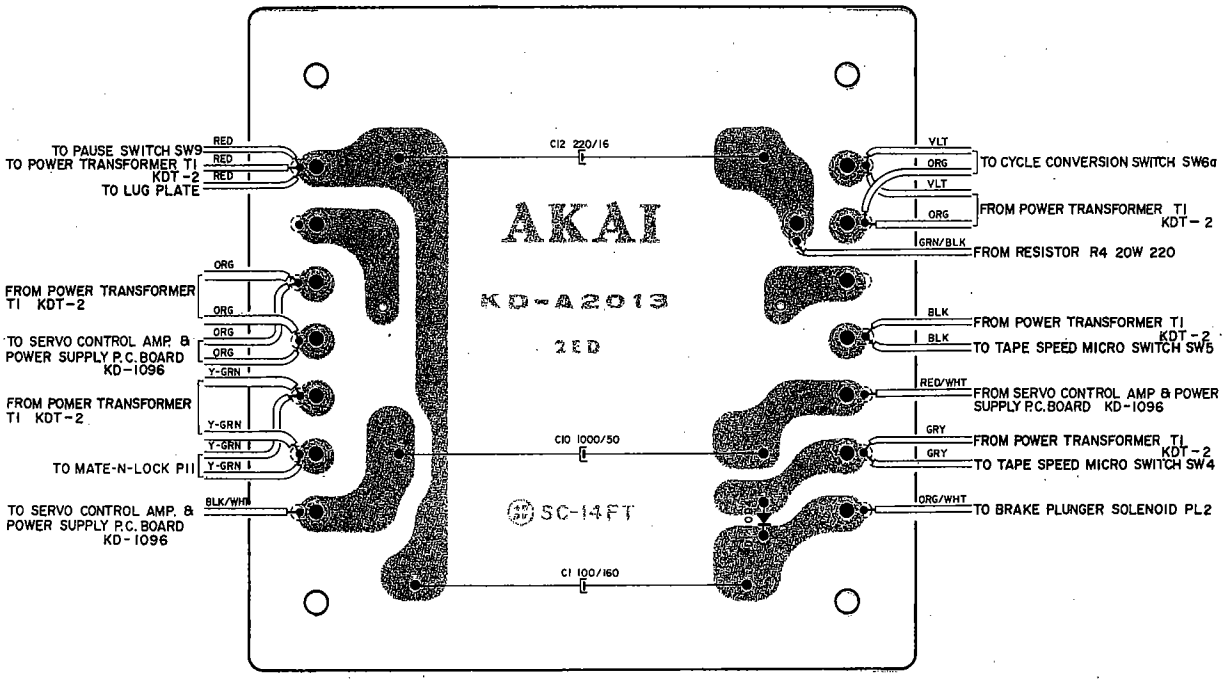
4. OPERATION LAMP P.C. BOARD KF-1002



5. JACK P.C. BOARD KF-5014


FROM FRONT CH. DIN JACK J3
TO F.L. CH. MIC JACK J2
TO F.R. CH. MIC JACK J4
FROM FRONT CH. DIN JACK J3
TO F.R. CH. LINE INPUT JACK J5
TO F.L. CH. LINE VOLUME VR1b
FROM F.L. CH. LINE INPUT JACK J1
FROM REAR CH. P.B. AMP. P.C. BOARD
TO R.L. CH. MIC JACK J7
TO R.R. CH. MIC JACK J9
FROM REAR CH. DIN JACK J8
TO R.L. CH. LINE VOLUME VR4a
FROM R.L. CH. LINE INPUT JACK J6
FROM REAR CH. DIN JACK
FROM R.R. CH. LINE INPUT JACK J10
TO R.R. CH. LINE VOLUME VR4b
TO R.R. CH. LINE INPUT JACK J10
TO F.R. CH. LINE VOLUME VR2b
FROM F.R. CH. LINE INPUT JACK J5
SW1
SW2
LOW
HIGH
LINE IN

6. CONDENSER P.C. BOARD KD-A2013


TO PAUSE SWITCH SW9
TO POWER TRANSFORMER T1 KDT-2
TO LUG PLATE
FROM POWER TRANSFORMER T1 KDT-2
TO SERVO CONTROL AMP. & POWER SUPPLY P.C. BOARD KD-1096
FROM POMER TRANSFORMER T1 KDT-2
TO MATE-N-LOCK P11
TO SERVO CONTROL AMP. & POWER SUPPLY P.C. BOARD KD-1096
C12 220/16
C10 1000/50
C1 100/160
AKAI
KD-A2013
2ED
SC-14FT
TO CYCLE CONVERSION SWITCH SW6a
FROM POWER TRANSFORMER T1 KDT-2
FROM RESISTOR R4 20W 220
FROM POWER TRANSFORMER T1 KDT-2
TO TAPE SPEED MICRO SWITCH SW5
FROM SERVO CONTROL AMP & POWER SUPPLY P.C.BOARD KD-1096
FROM POWER TRANSFORMER T1 KDT-2
TO TAPE SPEED MICRO SWITCH SW4
TO BRAKE PLUNGER SOLENOID PL2

SECTION 2

PARTS LIST

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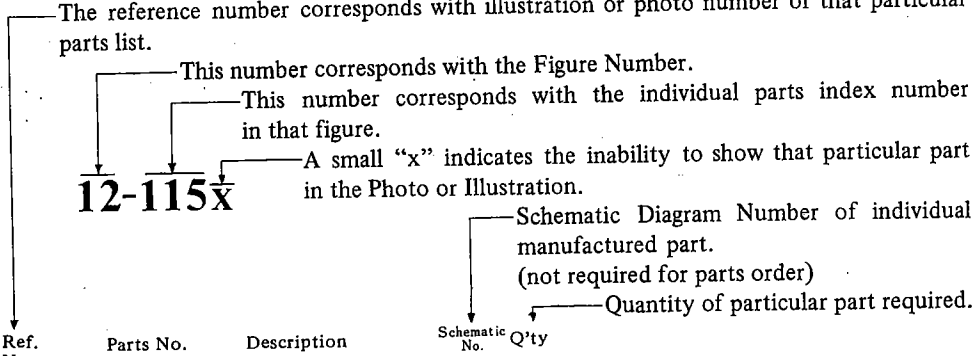
HOW TO USE THIS PARTS LIST

1. This parts list is compiled by various individual blocks based on assembly process.
2. When ordering parts, please describe parts number, serial number, and model number in detail.
3. How to read List


The reference number corresponds with illustration or photo number of that particular parts list.
This number corresponds with the Figure Number.
This number corresponds with the individual parts index number in that figure.
A small "x" indicates the inability to show that particular part in the Photo or Illustration.
12-115x
Schematic Diagram Number of individual manufactured part.
(not required for parts order)
Quantity of particular part required.

Ref. No.	Parts No.	Description	Schematic No.	Q'ty
		FLYWHEEL BLOCK #13		
12-115x	800425	Flywheel Block Assy. Comp.	RDG #13	1
12-116	244506	Flywheel Only	RD-233	1
12-117x	244754	Felt, Flywheel	RD-275	1
12-118	251324	Main Metal Case	RD-236	1
12-119	253080	Main Metal	RD-237	1

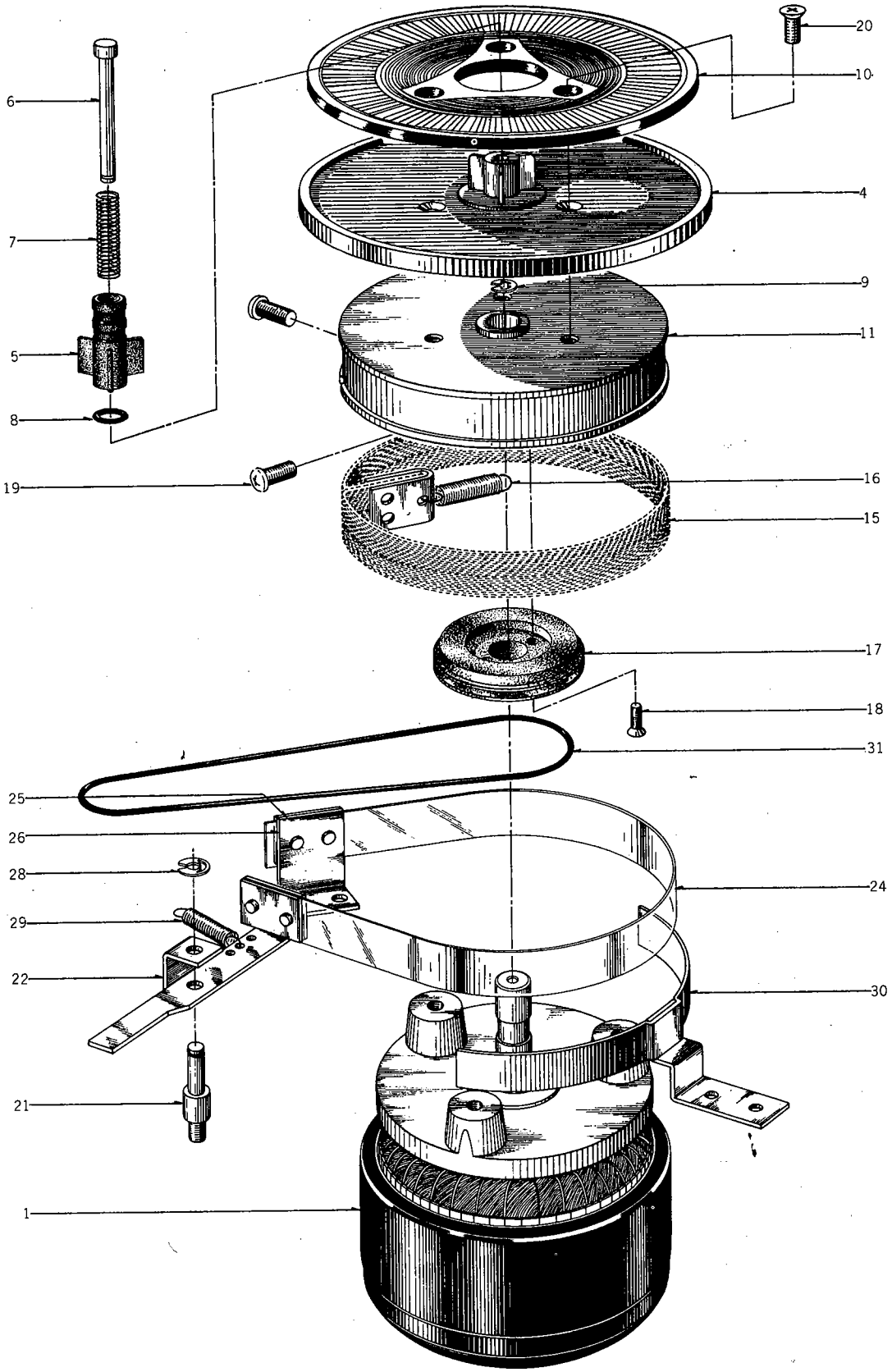
4. The symbol numbers shown on the P.C. Board list can be matched with the Composite Views of components of the Schematic Diagram or Service Manual.
5. The indications of Resistors and Capacitors in the photos of P.C. Board are being eliminated.
6. The shape of the parts and parts name, etc. can be confirmed by comparing them with the parts shown on the Electrical Parts Table of P.C. Board.
7. Both the kind of part and installation position can be determined by the Parts Number. To determine where a parts number is listed, utilize Parts Index at end of Parts List.
   It is necessary first of all to find the Parts Number. This can be accomplished by using the Reference Number listed at right of parts number in the Parts Index. (meaning of ref. no. outlined in Item 3 above).
8. Utilize separate "Price List for Parts" to determine unit price. The most simple method of finding parts Price is to utilize the reference number.

HEAD BLOCK

Ref. No.	Parts No.	Description	Schematic No.	Q'ty
1-1x	BH513270	Head Block Comp.	KF-2	1
1-2	HZ396448	Head Chassis, w/shaft	KD-0001	1
1-3x	BZ435003	Sensing Guide (B) Comp.	KF,KD	1
1-4	HZ396584	Sensing Guide C	KD-0015	1
1-5	HZ396797	Sensing Guide	KD-0036	1
1-6	ZW439402	Screw, round head 3x3.2		1
1-7	HZ317632	Insulator Collar A	MR-36	1
1-8	HZ396595	Sensing Guide D	KD-0016	1
1-9	ZW273778	Earth Lug, M3		1
1-10	HZ396505	Insulator Collar	KD-0007	1
1-11	ZW396786	Tape Guide Washer	KD-0035	1
1-12	ZW202252	Screw, round head 2.3x12		1
1-13x	ZW434250	Screw, pan head 4x8, w/washer		1
1-14	MZ402546	Stopper Collar	KD-1070	1
1-15	MZ428343	KD Stopper Rubber	KD-1088	1
1-16	ZW413785	Screw, binding head 3x12		1
1-17	HZ803597	Tape Guide A	RD-3	1
1-18	ZW434250	Screw, pan head 4x8, w/washer		1
1-19	HZ412637	Tape Guide Post	RD-A30	1
1-20x	ZW273802	Toothed Lock Washer, M3		1
1-21	ZW273756	Nut, M3		1
1-22	HF412187	ERASE HEAD E4-250		1
1-23	HZ382680	Erase Head Base	RD-A5	2
1-24	ZW201475	Screw, pan head 2x3		4
1-25	ZW202061	Screw, binding head 3x5		4
1-26x	ZW273778	Earth Lug, M3.		1
1-27	HE412198	ERASE HEAD EF-200		1
1-28	HR513292	REC. HEAD R4-280		1
1-29	HZ441911	Rec. Angle	KF-0005	1
1-30x	ZW201508	Screw, pan head 2x4		2
1-31	ZG364656	Angle Adjust Spring C	RD-57	3
1-32	ZW336868	Screw, round head 3x12		1
1-33	ZW455231	Screw, countersunk head 3x10		2
1-34x	BC411085	4QP Shield Case	LF-0014	2
1-35x	HZ411074	4QP Back-shield	LF-0013	2
1-36x	EA437736	Head Terminal Plate (LF)	LF-0028	2
1-37	HP513281	P.B. HEAD P4-280		1
1-38	HZ441922	Head Shield	KF-0027	1
1-39	HZ512111	P.B. Head Angle	KF-0223	1
1-40x	ZW201508	Screw, pan head 2x4		2
1-41	ZW338635	Screw, round head 3x3		2
1-42	HZ441933	Triple-shield B	RD-A3	1
1-43	ZW426622	Washer (SPC) D3.4x7.8x0.5t		2
1-44	ZW403312	Hexagon Bolt 3x4		2
1-45	HZ405178	P.B. Head Adjust Base A	KD-0030	1
1-46	ZW200305	Screw, countersunk head 3x5		2
1-47	ZG396538	Conic Spring	KD-0010	3
1-48	ZW336857	Screw, round head 3x8		1
1-49	ZW329016	Screw, countersunk head 3x8		2
1-50x	EA222096	Connector P.C. Board	RD-140	1
1-51	HZ231884	Tape Guide B	RD-5	1
1-52	ZW384840	Set Screw 3x5 (cup)		1
1-53	HL396630	Shifter Lever 1, w/pin	KD-0020	1
1-54	HZ396696	Shifter Joint	KD-0026	2
1-55	ZW290283	'U' Ring 2.85M	6-1-1	6
1-56	HL396685	Shifter Lever 2, w/pin	KD-0025	1
1-57	HL408508	Shifter Stopper	KD-0039	1
1-58	ZW345442	Washer (Nylon) D4.2x9x1t		1
1-59	HL396718	Shifter Lever, w/pin	KD-0028	1
1-60	ZG433383	Shifter Spring B	KD-A1008	1
1-61	ZG407575	Shifter Lever Spring	KD-1078	1

When ordering parts, please describe Parts Number, Serial Number, and Model Number in detail.

FIG. 2 ILLUSTRATION OF REEL MOTOR & REEL TABLE BLOCK

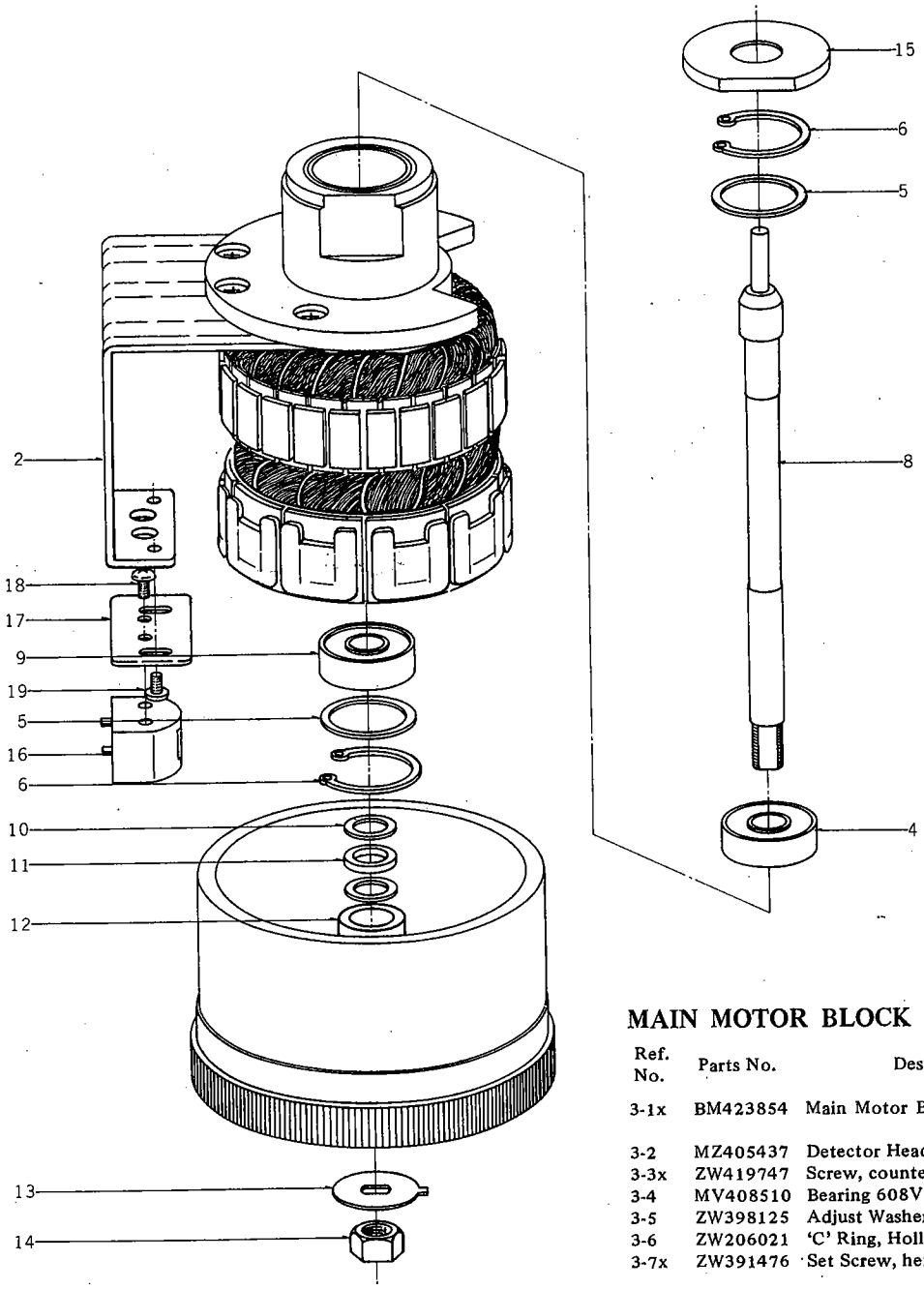


REEL MOTOR & REEL TABLE BLOCK

Ref. No.	Parts No.	Description	Schematic No.	Q'ty
2-1	BM314741	Reel Motor Block Comp. (24XO-2)	KF,KD,MS, MC	1
2-2x	BR398430	Supply Reel Table Block Comp.	KF,KD	1
2-3x	BR398441	Take-up Reel Table Block Comp.	KF,KD	1
2-4	MT488158	RD Reel Table Disk A	RD-272	1
2-5	MT255420	Reel Retainer	3R-102	1
2-6	MS342000	Reel Shaft	3R-108	1
2-7	ZG255633	Reel Spring	3R-109	1
2-8	MT297663	3R 'O' Ring 2.9x1.65M	3R-139	1
2-9	ZW270088	'E' Ring 1.9M	6-1-9	1
2-10	MT397225	Reel Table Rubber	KD-2017	1
2-11	MT495606	Brake Drum (R) A (Take-up)	MR-216	1
2-12x	MT495617	Brake Drum (L) A (Supply)	MR-216	1
2-13x	ZW273778	Earth Lug, M3		2
2-14x	ZW425981	Screw, binding head 3x3		2
2-15	MT436860	Brake Cloth Comp.	MR-269	1
2-16	ZG317496	Felt Tension Spring	MR-260	1
2-17	MR317507	Counter Pulley (Take-up)	MR-217	1
2-18	ZW516644	Screw, countersunk head 2.3x10		2
2-19	ZW424056	Screw, pan head 4x10		2
2-20	ZW403222	Screw, countersunk head 3x10		3
2-21	MZ317373	Brake Lever Prop	MR-102	2
2-22	ML314976	Brake Lever A (Take-up)	MR-210	1
2-23x	ML396810	Brake Lever B (Supply)	KD-1038	1
2-24	MB314987	Brake Band	MR-213	2
2-25	MZ314998	Brake Band Retaining Plate	MR-212	4
2-26	MZ315000	Brake Band Support	MR-214	2
2-27x	ZW323728	Screw, binding head 3x5		8
2-28	ZW290283	'U' Ring 2.85M	6-1-1	1
2-29	ZG315011	Brake Lever Spring	MR-116	2
2-30	MZ317406	Brake Band Guide, w/base	MR-120	2
2-31	MB303535	Counter Belt D91x1.6	3A-617	1

When ordering parts, please describe Parts Number, Serial Number, and Model Number in detail.

FIG. 3 ILLUSTRATION OF MAIN MOTOR BLOCK

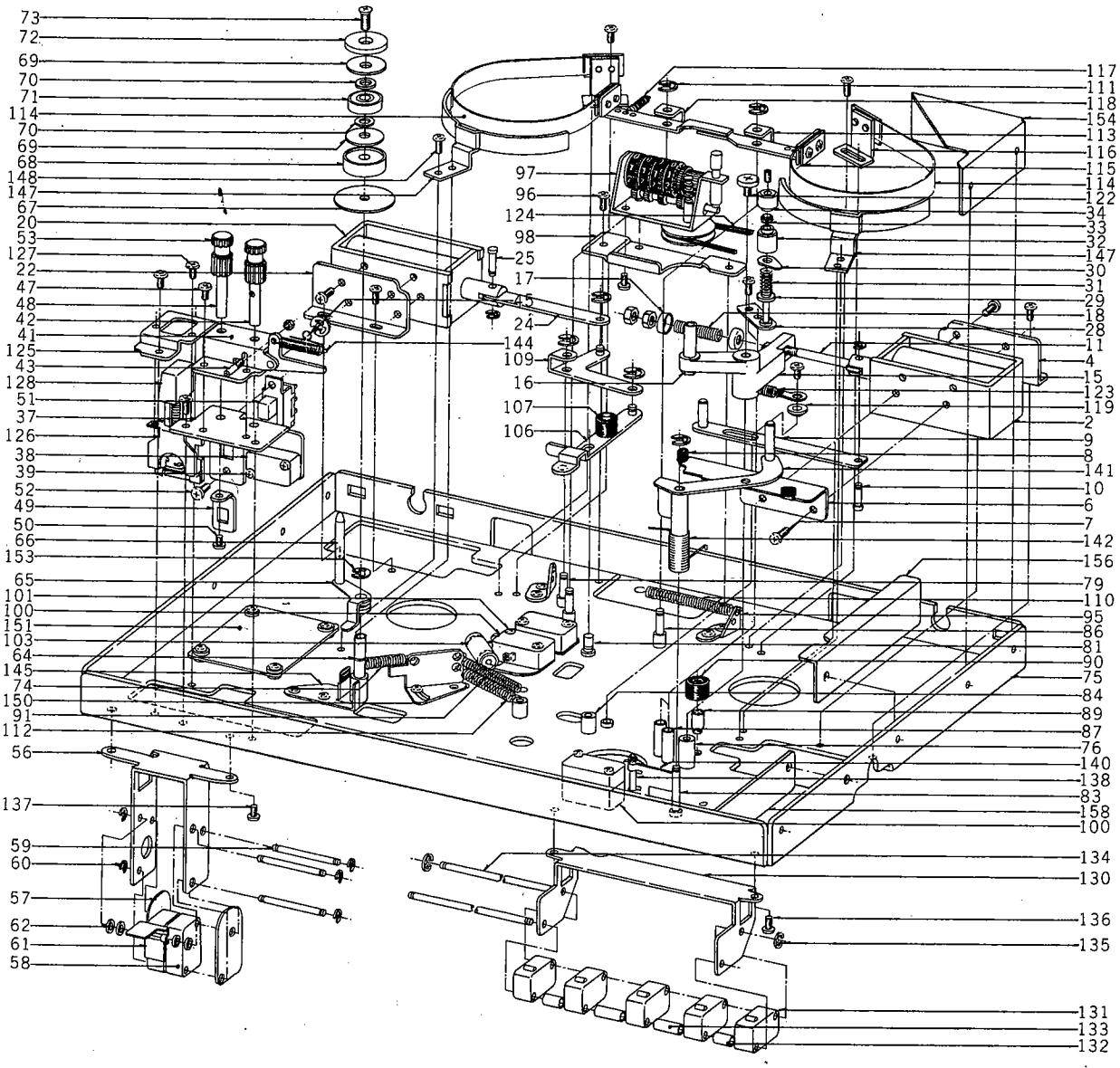


MAIN MOTOR BLOCK

Ref. No.	Parts No.	Description	Schematic No.	Q'ty
3-1x	BM423854	Main Motor Block Comp. (SCM-24)	KF,KD	1
3-2	MZ405437	Detector Head Mt. Base	KD-7029	1
3-3x	ZW419747	Screw, countersunk head 4x6		4
3-4	MV408510	Bearing 608VVC2E-AV2-L		1
3-5	ZW398125	Adjust Washer A	KD-7019	2
3-6	ZW206021	'C' Ring, Hollow D22	6-1-2	2
3-7x	ZW391476	Set Screw, hexagon socket 4x4 (cup)		1
3-8	MS424192	Shaft (Capstan)	KD-7056	1
3-9	MV248130	Bearing 608VVC2E-B32		1
3-10	ZW321592	Washer (SUS) D8.1x13x0.3t		2
3-11	ZW356883	Washer (Hycar) D8.3x11.8x 0.5t		3
3-12	ZW424203	Spacer	KD-7057	1
3-13	ZW398158	Anti Loosening Washer	KD-7022	1
3-14	ZW403536	Nut, M7 P=0.5		1
3-15	MZ398182	Cap	KD-7026	1
3-16	HK398452	DETECTOR HEAD	KF,KD,KH	1
3-17	MZ400421	Detector Head Plate	KD-3008	1
3-18	ZW201475	Screw, pan head 2x3		2
3-19	ZW413155	Screw, binding head 3x6		2

When ordering parts, please describe Parts Number, Serial Number, and Model Number in detail.

FIG. 4 ILLUSTRATION OF MECHANISM ASSEMBLY BLOCK (1)



MECHANISM ASSEMBLY BLOCK (1)

Ref. No.	Parts No.	Description	Schematic No.	Q'ty
		PINCH ROLLER PLUNGER BLOCK		
4-1x	BZ428940	Pinch Roller Plunger Block Comp.	KF,KG,KA	1
4-2	EP441990	Plunger 1660THTI Solenoid	44-1-45	1
4-3x	ER376424	Spark Quencher U/L 0.1μ+120 500WV	41-1-36	1
4-4	MZ396911	Plunger Bracket	KD-1028	1
4-5x	ZW323728	Screw, binding head 3x5		3
4-6	MZ396922	Black Mask 2	KD-1029	1
4-7	ZW417137	Screw, binding head 3x4		2
4-8	MZ428343	KD Stopper Rubber	KD-1088	2
4-9	MZ396966	Plunger Joint, w/pin	KD-1033	1
4-10	ZW257477	Connecting Pin	RD-211	1
4-11	MZ396944	Pinch Roller Arm Joint	KD-1031	1
4-12x	ZW270088	'E' Ring 1.9M	6-1-9	1
4-13x	ZW345442	Washer (Nylon) D4.2x9x1t		1
4-14x	ZW270101	'E' Ring 3M	6-1-9	1
4-15	MZ396933	Pinch Roller Arm, w/shaft	KD-1030	1
4-16	ZW273960	Nut, M4		3
4-17	MZ802980	Spring Holder	RD-276	2
4-18	ZG428927	Pinch Roller Spring B	KD-1032	1

Ref. No.	Parts No.	Description	Schematic No.	Q'ty
		BRAKE PLUNGER BLOCK		
4-19x	BZ398338	Brake Plunger Block Comp.	KF,KD,KH	1
4-20	EP398610	Plunger Solenoid SDC-10-M-C-100V	44-1-36	1
4-21x	ER376424	Spark Quencher U/L 0.1μ+120 500WV	41-1-36	1
4-22	MZ396911	Plunger Bracket	KD-1028	1
4-23x	ZW201835	Screw, binding head 3x5		4
4-24	MZ396977	Brake Plunger Joint	KD-1039	1
4-25	ZW257477	Connecting Pin	RD-211	1
4-26x	ZW270088	'E' Ring 1.9M	6-1-9	1
		SENSING GUIDE BLOCK		
4-27x	BZ398362	Sensing Guide Block Comp.	KF,KD	1
4-28	MZ396551	Sensing Table, w/prop	KD-2021	1
4-29	MZ396573	Insulator Collar B	KD-2023	1
4-30	MZ397203	Sensing Pole Terminal Plate	KD-2032	1
4-31	ZG396516	Tape Guide Adjust Spring	KD-2024	1
4-32	MZ396527	Sensing Guide B	KD-2025	1
4-33	MZ397214	Insulator Liner A	KD-2031	1

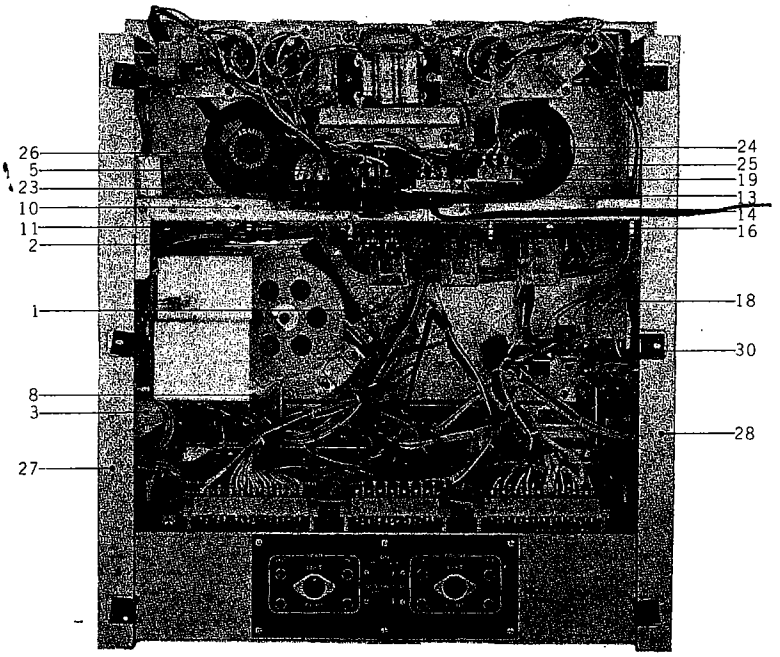
When ordering parts, please describe Parts Number, Serial Number, and Model Number in detail.

Ref. No.	Parts No.	Description	Schematic No.	Q'ty
4-34	MZ397192	Sensing Guide A	KD-2026	1
4-35x	ZW433001	Set Screw, hexagon socket 3x5 (cup)		1
		PAUSE & SHUT-OFF SWITCH BLOCK		
4-36x	BZ398340	Pause & Shut-off Switch Block Comp.	KF,KD	1
4-37	MZ397405	Pause & Shut-off Switch Table A	KD-2029	1
4-38	ES250075	Micro Switch V-1A10 U/L	25-1-8	1
4-39	ZW422965	Screw, pan head 3x15		2
4-40x	ER376435	Spark Quencher U/L 0.1μ+120 250WV	41-1-35	1
4-41	MZ397416	Pause & Shut-off Switch Table B, w/lever	KD-2030	1
4-42	MS397451	Pause Shaft	KD-2036	1
4-43	MZ397462	Shut-off Switch Pin	KD-2037	1
4-44x	ZW273734	Nut, M2		1
4-45	ZG397440	Pause Lever Spring	KD-2035	1
4-46x	ZW270123	'E' Ring 4M	6-1-9	1
4-47	ZW467908	Screw, pan head 3x4, w/washer		2
4-48	MS397473	Shut-off Shaft	KD-2038	1
4-49	MZ397484	Shut-off Switch Plate	KD-2039	1
4-50	ZW413155	Screw, binding head 3x6		1
4-51	ES317531	Slide Switch ESD-271DU	25-3-24	1
4-52	ZW323728	Screw, binding head 3x5		2
4-53	SK397596	Pause & Shut-off Knob	KD-2041	2
4-54x	ZW434160	Set Screw, hexagon socket 3x3 (cup)		2
		SPEED CHANGE SWITCH BLOCK		
4-55x	BS442258	Speed Change Switch Block Comp.	KF	1
4-56	MZ446995	Speed Change Switch Stand	KF-2022	1
4-57	MZ402377	Micro Insulator D	KD-2050	2
4-58	ES250064	Micro Switch V-1A44 U/L	25-1-7	2
4-59	MS438254	Micro Switch Shaft	KF-2023	3
4-60	ZW270088	'E' Ring 1.9M	6-1-9	6
4-61	ML397383	Speed Change Switch Lever 2	KD-2016	1
4-62	ZW425733	Washer (ALP) D3.1x3x1t		2
		GUIDE ROLLER BLOCK		
4-63x	BZ434992	Guide Roller Block Comp.	KF,KD	1
4-64	MS432358	Guide Roller Shaft	KD-A2002	1
4-65	MZ432832	Tension Arm, w/pulley	KD-A2003	1
4-66	MZ432360	Tension Pole	KD-A2004	1
4-67	MZ434316	Roller Mask	KD-A2005	1
4-68	MZ434970	Tape Guide Table A	KD-A2006	1
4-69	ZW231805	Tape Guide Washer (large)	3A-356	2
4-70	ZW317171	Washer (PBP) D3.1x8x0.1t		2
4-71	MV248117	Bearing 635AHZZ-CIE-B32		1
4-72	MZ434981	Tape Guide Table B	KD-A2007	1
4-73	ZW411660	Screw, oval countersunk head 3x6	MR-39	1
4-74	ZG317114	Tension Lever Spring		1
		ASSEMBLY BLOCK		
4-75	MZ396990	Mech. Frame	KD-1001	1
4-76	MS397001	Pinch Roller Arm Shaft	KD-1002	1
4-77x	ZW274026	Spring Washer, M5		1
4-78x	ZW413278	Nut, M5		1
4-79	MS397012	Brake Lever Shaft	KD-1003	1
4-80x	ZW413188	Nut, M4		4
4-81	MS465480	Brake Lever Shaft B	KD-1093	1
4-82x	ZW516611	Nut, M3		1
4-83	MS397023	Tension Arm Shaft	KD-1004	1
4-84	HZ397034	Head Base Prop	KD-1005	4
4-85x	ZW416687	Screw, binding head 4x8		4
4-86	MZ317373	Brake Lever Prop	MR-102	2
4-87	MZ397168	Sensing Table Prop	KD-1062	2
4-88x	ZW413741	Screw, binding head 3x8		6
4-89	MS217192	Cam Roller Shaft A	900-130	1

Ref. No.	Parts No.	Description	Schematic No.	Q'ty
4-90	MZ428343	KD Stopper Rubber	KD-1088	1
4-91	ZG433383	Shifter Spring B	KD-A1008	1
4-92x	ZW420682	Washer (Nylon) D4.2x9x0.5t		1
4-93x	MZ397045	Sys. Con. Connector Prop	KD-1006	4
4-94x	MZ397170	Trans. Table C	KD-1065	2
4-95	MZ397080	Spring Hanger	KD-1010	2
4-96	ZW323728	Screw, binding head 3x5		4
4-97	MC399521	Counter M-470D	9-1-14	1
4-98	MZ397078	Counter Base	KD-1009	1
4-99x	MZ250413	Micro Insulator C	RC-127	2
4-100	ES250064	Micro Switch V-1A44 U/L	25-1-7	4
4-101	ZW439514	Screw, binding head 3x18		2
4-102x	ZW397146	Micro Switch Nut	KD-1057	1
4-103	EC273464	MP/C. 0.1μF(M) 350WVDC (Tub. type)	24-9-4	1
4-104x	ZW422965	Screw, pan head 3x15		2
4-105x	ZW414066	Screw, binding head 3x25		2
4-106	MZ396832	Brake Slide, w/pin	KD-1044	1
4-107	MZ397181	Lever Cushion	KD-1069	1
4-108x	ZW270101	'E' Ring 3M	6-1-9	1
4-109	ML396742	Brake Lever, w/pin	KD-1041	1
4-110	ZG465478	Brake Lever Spring	KD-1092	1
4-111	ZW290283	'U' Ring 2.85M	6-1-1	6
4-112	ZG407575	Shifter Lever Spring	KD-1078	1
4-113	ML314976	Brake Lever A (Take-up)	MR-210	1
4-114	MB314987	Brake Band	MR-213	2
4-115	MZ314998	Brake Band Retaining Plate	MR-212	4
4-116	MZ315000	Brake Band Support	MR-214	2
4-117	ZG315011	Brake Lever Spring	MR-116	2
4-118	ML396810	Brake Lever B (Supply)	KD-1038	1
4-119	ZW397157	Graduated Washer	KD-1036	1
4-120x	ZW273778	Earth Lug, M3		1
4-121x	ZW413155	Screw, binding head 3x6		1
4-122	ZW243516	Screw, Pinch Roller	XR-140	1
4-123	ZG208091	Impedance Arm Spring	RD-269	1
4-124	MB303535	Counter Belt D91x1.6	3A-617	1
4-125	MZ397394	Power Switch Table	KD-2028	1
4-126	ES246025	Push Switch UEH-12BP U/L	25-5-11	1
4-127	ZW371856	ISO Screw, binding head 3x5		2
4-128	SK210521	Push Button Switch Knob	RD-506	1
4-129x	ZW417137	Screw, binding head 3x4		2
4-130	MZ441988	Operation Switch Base	KF-1001	1
4-131	ES403727	Micro Switch V-1A106 U/L	25-1-20	5
4-132	MZ397337	Switch Spacer A	KD-2005	2
4-133	MZ397348	Switch Spacer B	KD-2006	2
4-134	MS250165	Micro Switch Shaft B	RD-122B	2
4-135	ZW270088	'E' Ring 1.9M	6-1-9	4
4-136	ZW323728	Screw, binding head 3x5		2
4-137	ZW417137	Screw, binding head 3x4		2
4-138	MS408497	Switch Lever Shaft	KD-1080	1
4-139x	ZW273756	Nut, M3		1
4-140	ML409083	Micro Switch Lever	KD-1081	2
4-141	ML396900	Shut-off Lever, w/metal	KD-1052	1
4-142	ZG409015	Tension Arm Spring C	KD-1079	1
4-143x	ZW273881	Earth Lug, M4		1
4-144	ZG366761	Slider Spring	RCC-1209	1
4-145	MZ433721	Stopper	KD-A1006	1
4-146x	MZ428343	KD Stopper Rubber	KD-1088	1
4-147	MZ317406	Brake Band Guide, w/base	MR-120	2
4-148	ZW323728	Screw, binding head 3x5		4
4-149x	MP424023	Pinch Roller (KD)	KD-1084	1
4-150	MZ434237	KD Spring Hanger	KD-A1007	1
4-151	BA442214	Auto Repeat P.C. Board Comp.	KF-2013	1
4-152x	ZW413785	Screw, binding head 3x12		4
4-153	ZW317103	Snap Ring E-40	6-1-12	1
4-154	SZ397528	Corner Angle B (Right)	KD-6003	1
4-155x	SZ397517	Corner Angle A (Left)	KD-6003	1
4-156	SZ441347	Side Angle B (Right)	KF-6002	1
4-157x	SZ441336	Side Angle A (Left)	KF-6002	1
4-158	SZ441358	Side Angle C	KF-6003	2
4-159x	SZ417194	Screw, binding head 3x10		4

When ordering parts, please describe Parts Number, Serial Number, and Model Number in detail.

FIG. 5 PHOTO OF MECHANISM ASSEMBLY BLOCK (2)



MECHANISM ASSEMBLY BLOCK (2)

Ref. No.	Parts No.	Description	Schematic No.	Q'ty
5-1	MZ441966	Motor Shield	KF-1004	1
5-2	EJ310871	18P Multi-jack J-2 3250-018-001	31-4-11	2
5-3	EJ399823	6P Mate-N-Lock Cap Housing 1-480276-0	52-1-2	1
5-4x	HZ243191	Pin Contact 60511-1	52-1-1	6
5-5	EJ222748	Sub Magnale Socket #311SG	31-1-39	1
5-6x	MZ302400	Remote Control Socket Mt. Plate	RX-515	1
5-7x	ZW413741	Screw, binding head 3x8		4
5-8	MZ446951	Servo Shield Plate	KF-1008	1
5-9x	ZW323728	Screw, binding head 3x5		9
5-10	EZ397135	Center Frame	KD-1053	1
5-11	EZ397743	P.C. Board Prop	KD-2044	3
5-12x	ZW447772	Tapping Screw #2 3x6(BR)		1
5-13	EZ397293	Connector Plate	KD-2042	1
5-14	EZ383938	U/L AC Cord 3M	26-3-20	1
5-15x	EZ315448	Australia Cord (3 core)	26-3-11	1
5-16	EZ382263	Strain Relief SR-4K-4	2-7-12	1
5-17x	EZ246936	Strain Relief SR-6W-1(3 core)	2-7-8	1
5-18	EJ205986	Cramp Terminal 2-SD	32-1-8	10
5-19	EZ397124	Cycle Change Switch Plate B	KD-1055	1
5-20x	ZW201150	Screw, truss head 3x6 (black)		6
5-21x	ZW374128	Iso Screw, truss head 3x8		2
5-22x	ZW447761	Tapping Screw #2 3x6 (BR)		4
5-23	EJ326430	11P Short Plug A	42-1-25	1
5-24	EZ397304	Frequency Change Switch Plate A	KD-2043	1
5-25	ES375478	Slide Switch ESD-279DU	25-3-23	2
5-26	EJ233370	Power Plug Socket S-18010 (Volt. Select.)	40-2-3	1
5-27	SZ441314	Side Frame A (Right)	KF-6001	1
5-28	SZ441325	Side Frame B (Left)	KF-6001	1
5-29x	ZW290248	U Type Speed Nut M4 #1 (small)	6-3-1	6
5-30	ZW290250	U Type Speed Nut M4 #1 (large)	6-3-2	10
5-31x	SZ441415	Panel Reinforcement Plate A (Left)	KF-6014	1
5-32x	SZ441426	Panel Reinforcement Plate B (Right)	KF-6014	1

When ordering parts, please describe Parts Number, Serial Number, and Model Number in detail.

FIG. 6 (A) ILLUSTRATION OF OPERATION BLOCK

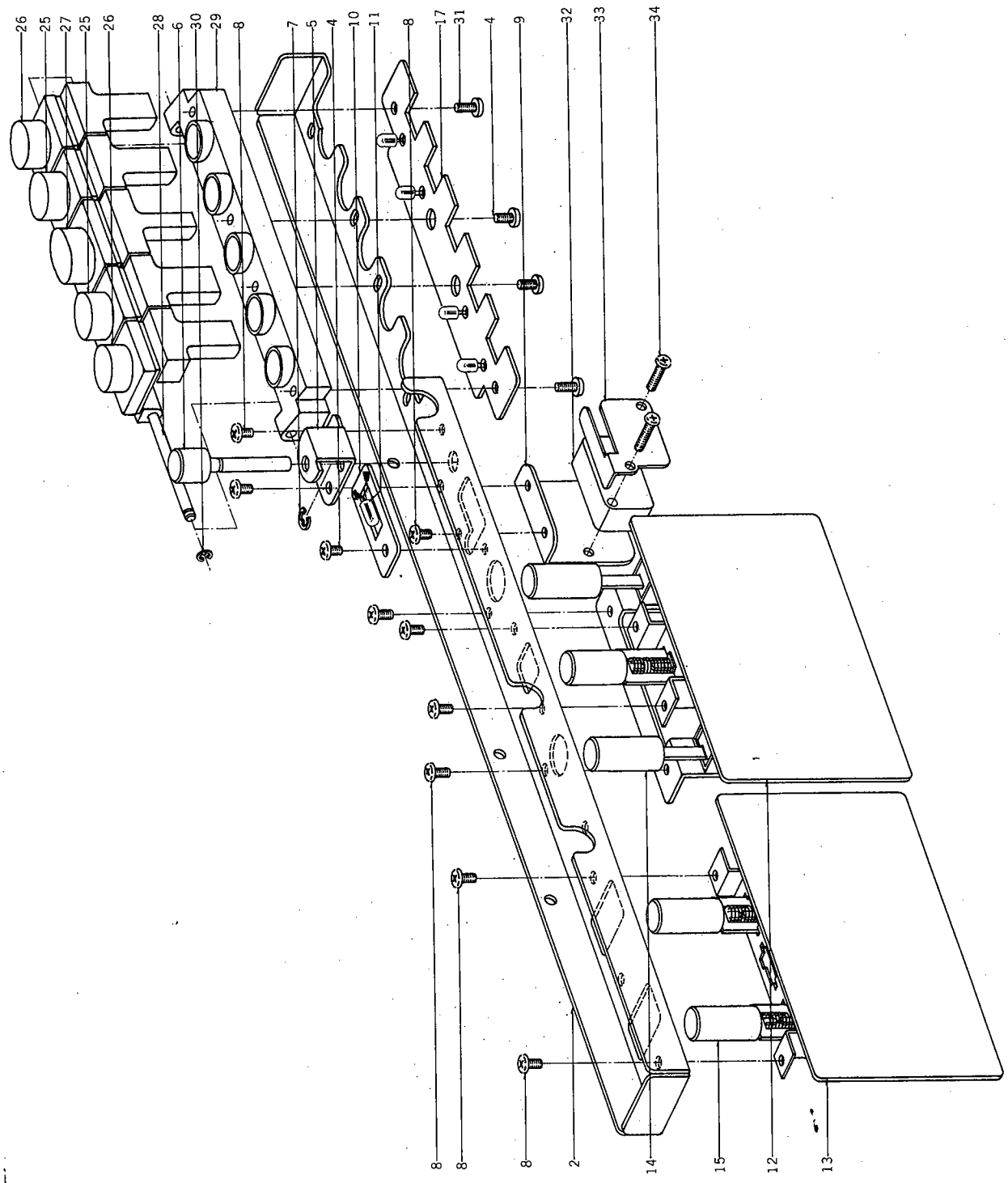
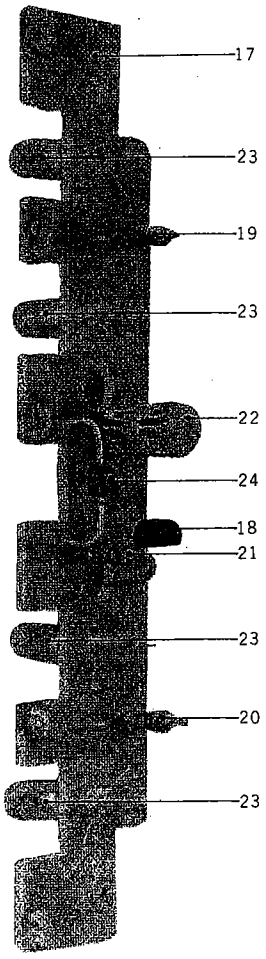


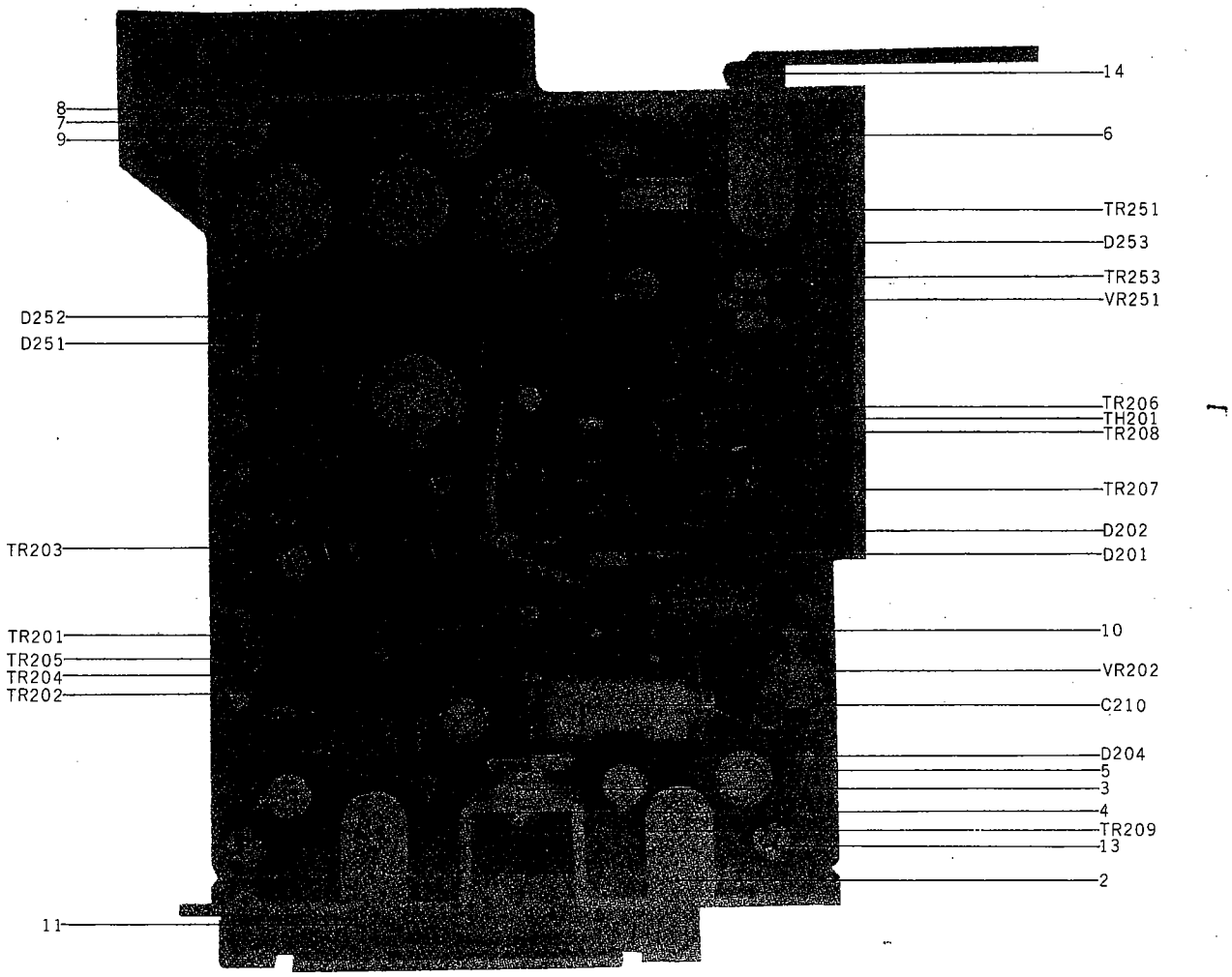
FIG. 6 (B) PHOTO OF OPERATION BLOCK



OPERATION BLOCK

Ref. No.	Parts No.	Description	Schematic No.	Q'ty
6-1x	BZ513257	Operation Block Comp.	KF-2	1
6-2	MZ441595	Operation Button Base	KF-2001	1
6-3x	BA442247	Operation Lamp P.C. Board Comp. (KF-1002)		1
6-4	ZW447772	Tapping Screw #2 3x6(BR)		6
6-5	MZ441573	Rec. Button Holder	KF-2003	1
6-6	SB438265	Rec. Button, w/shaft	KF-2015	1
6-7	ZW270101	'E' Ring 3M	6-1-9	1
6-8	ZW323728	Screw, binding head 3x5		9
6-9	MZ441584	Rec. Switch Base	KF-2002	1
6-10	EA396898	Neon Lamp P.C. Board	KD-1068	1
6-11	EL390576	Pilot Lamp RM6-24V-50MA	28-2-6	1
6-12	BA442225	Switch P.C. Board Comp. (KF-2012)		1
6-13	BA513268	Equalizer Switch P.C. Board Comp. (KF-2014)		1
6-14	SK441628	Knob A	KF-2018	3
6-15	SK436252	Knob B	KF-2019	2
6-16x	BA442247	Operation Lamp P.C. Board Comp. (KF-1002)		1
6-17	EA441720	Operation Lamp P.C. Board	KF-1002	1
6-18	ET398711	Transistor 2SC945(Q) (R)	45-1-85	1
6-19	ER430053	Carbon/R. RD1/4 22(J) (Stop. type)	35-10-1	1
6-20	ER212883	Carbon/R. RD1/4 4.7k (J)	35-10-1	1
6-21	ER211465	Carbon/R. RD1/4 1k (J) (Stop. type)	35-10-1	1
6-22	EC336104	Elect./C. 100μF 6.3WV (Vert. type)	24-12-10	1
6-23	EL390576	Pilot Lamp RM6-24V-50MA	28-2-6	4
6-24	ED224526	Silicon Diode 10D1	45-2-11	1
6-25	SB441538	Button C (green)	KF-2005	2
6-26	SB441516	Button A (orange)	KF-2005	2
6-27	SB441527	Button B (black)	KF-2006	1
6-28	MS438243	Button Shaft	KF-2009	1
6-29	EZ441562	Lamp Cover	KF-2004	1
6-30	ZW270088	'E' Ring 1.9M	6-1-9	2
6-31	ZW413155	Screw, binding head 3x6		2
6-32	ES250075	Micro Switch V-1A10 U/L	25-1-8	1
6-33	ZG466154	Switch Spring	KD-A2012	1
6-34	ZW413785	Screw, binding head 3x12		2

FIG. 7 PHOTO OF SERVO P.C. BOARD (KD-1096)



SERVO P.C. BOARD (KD-1096) BLOCK

Symbol No.	Parts No.	Description	Q'ty
7-1x	BA423876	Servo P.C. Board Comp. (KD-1096)	1
7-TR201	ET379462	Transistor 2SC711(D) (E)	1
7-TR202	ET356984	Transistor 2SA564(R)	1
7-TR203, 4	ET379462	Transistor 2SC711(D) (E)	2
7-TR205	ET356984	Transistor 2SA564(R)	1
7-TR206	ET398777	Transistor 2SC711(G) (F)	1
7-TR207	ET379462	Transistor 2SC711(D) (E)	1
7-TR208	ET399936	Transistor 2SC945(R) (S)	1
7-TR209	ET403042	Transistor 2SD234(Y)	1
7-TR251	ET393581	Transistor 2SC1014(D) (E)	1
7-TR252	ET403042	Transistor 2SD234(Y)	1
7-TR253	ET391138	Transistor 2SC968(3) (4)	1
7-D201,2,4	ED224526	Silicon Diode 10D1	3
7-D251	ED329130	Silicon Diode 10DC-1 (black)	1
7-D252	ED329128	Silicon Diode 10DC-1 (red)	1
7-D253	ED520762	Zener Diode YZ-088A	1
7-VR202	EV499364	Semi-fixed Volume V10K8-4-2 5 kB	1
7-VR251	EV398834	Semi-fixed Volume V10K5-2-4 1 kB	1
7-TH201	ED321390	Thermister 41D26	1
7-2	EZ407586	Heat-sink Plate B	1
7-3	ZW392940	Insulator Washer 1 G-473025-1	2
7-4	ZW421806	Screw, pan head 3x8	2
7-5	ZW273756	Nut, M3	4
7-6	EZ405213	Heat-sink Plate	1
7-7	ZW200687	Tapping Screw #2 3x6 (round)	2
7-8	ZW413741	Screw, binding head 3x8	2
7-9	ZW273802	Toothed Lock Washer, M3	1
7-10	EZ380428	F3 type Pin	2
7-11	EZ397721	Servo P.C. Board Retaining Plate	1
7-12x	EZ397743	P.C. Board Prop	4
7-13	ZW413155	Screw, binding head 3x6	3
7-14	EZ397732	Bracket	1
7-15x	ZW417025	Screw, binding head 3x8, w/washer	1
7-16x	ZW273778	Earth Lug, M3	1
7-17x	ZW413728	Screw, binding head 3x6, w/washer	4
		Capacitor, Vertical Type	
7-C201	EC398957	Mylar 0.1μF(M) 50WV	1
7-C202	EC251190	Mylar 0.056μF(K) 50WV	1
7-C203	EC331705	Elect. 22μF 16WV	1
7-C204	EC379787	Mylar 0.0039μF(J) 50WV	1
7-C205	EC320051	Elect. 10μF 16WV	1
7-C206	EC250661	Mylar 0.0015μF(K) 50WV	1
7-C207	EC220151	Elect. 100μF 25WV	1
7-C208	EC350684	Elect. 22μF 25WV	1
7-C209	EC329850	VFM 220PF(J) 50WV	1
7-C210	EC424080	Styrol 0.051μF(F) 50WV (Tub. type)	1

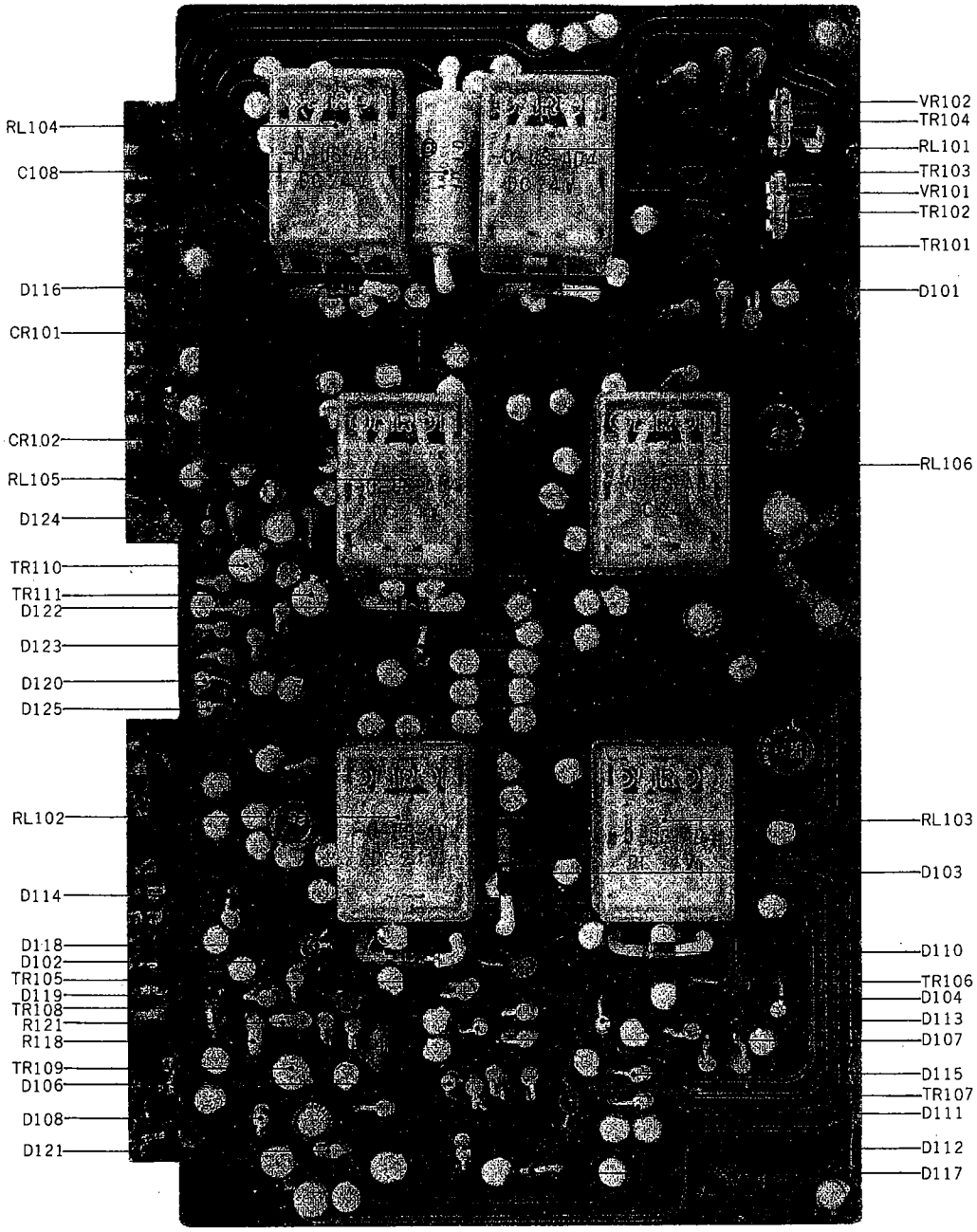
When ordering parts, please describe Parts Number, Serial Number, and Model Number in detail.

Symbol No.	Parts No.	Description	Q'ty
7-C211	EC438524	Mylar 0.27μF(H) 100WV	1
7-C213	EC220432	Elect. 2.2μF 25WV	1
7-C215	EC517116	Tantalum 33μF(M) 10WV (DTS type)	1
7-C251, 52	EC403468	Elect. 330μF 50WV	2
7-C253	EC372148	Elect. 220μF 35WV	1
7-C254	EC331817	Elect. 470μF 25WV	1
7-C255	EC350684	Elect. 22μF 25WV	1
7-C256	EC250918	Mylar 0.01μF(M) 50WV	1
		Resistor, Stopper Type	
7-R201	ER336442	Carbon RD1/4 10k(J)	1
7-R202	ER362441	Carbon RD1/4 1.8k(J)	1
7-R203	ER357456	Carbon RD1/4 2.2k(J)	1
7-R204	ER212264	Carbon RD1/4 22k(J)	1
7-R205,6,7	ER336442	Carbon RD1/4 10k(J)	3
7-R208	ER361642	Carbon RD1/4 47(J)	1
7-R209	ER211757	Carbon RD1/4 100k(J)	1
7-R210	ER357456	Carbon RD1/4 2.2k(J)	1
7-R211	ER212016	Carbon RD1/4 150(J)	1
7-R212	ER403187	Carbon RD1/4 10k(F) (P type)	1
7-R213	ER403097	Carbon RD1/4P 9.1k(F) (P type)	1
7-R214	ER212883	Carbon RD1/4 4.7k(J)	1
7-R217	ER306887	Carbon RD1/4 15k(J)	1
7-R218	ER212883	Carbon RD1/4 4.7k(J)	1
7-R219	ER357456	Carbon RD1/4 2.2k(J)	1
7-R220	ER211667	Carbon RD1/4 100(J)	1
7-R221	ER213030	Carbon RD1/4 5.6k(J)	1
7-R222, 23	ER357456	Carbon RD1/4 2.2k(J)	2
7-R224, 25	ER211465	Carbon RD1/4 1k(J)	2
7-R226	ER304290	Carbon RD1/4 10(J)	1
7-R227	ER306887	Carbon RD1/4 15k(J)	1
7-R228	ER424078	Carbon RD1/4 51(J)	1
7-R251	ER357456	Carbon RD1/4 2.2k(J)	1
7-R252	ER212681	Carbon RD1/4 330(J)	1
7-R253	ER343078	Carbon RD1/4 2.7k(J)	1
7-R254	ER357456	Carbon RD1/4 2.2k(J)	1
7-R255	ER306843	Carbon RD1/4 1.2k(J)	1
7-R256	ER538547	Carbon RD1/2W 47(J)	1

SYS. CON.
P.C. BOARD (KD-A1001A) BLOCK

Symbol No.	Parts No.	Description	Q'ty
8-1x	BA426284	Sys. Con. P.C. Board Comp. (KD-A1001A)	1
8-TR101 to 8	ET398711	Transistor 2SC945(Q) (R)	8
8-TR109 to 11	ET338894	Transistor 2SC968(3)	3
8-D101 to 3	ED224526	Silicon Diode 10D1	3
8-D104	ED219464	Germanium Diode 1N34A	1
8-D106 to 8	ED219464	Germanium Diode 1N34A	3
8-D110	ED224526	Silicon Diode 10D1	1
8-D111 to 15	ED219464	Germanium Diode 1N34A	5
8-D116 to 19	ED224526	Silicon Diode 10D1	2
8-D120, 21	ED219464	Germanium Diode 1N34A	2
8-D122, 23	ED224526	Silicon Diode 10D1	2
8-D124, 25	ED219464	Germanium Diode 1N34A	2
8-D126	ED224526	Silicon Diode 10D1	1
8-D127	ED224550	Silicon Diode 10D4	1
8-VR101	EV426936	Semi-fixed Volume V10K-5 30 kB	1
8-VR102	EV221826	Semi-fixed Volume V10K-5 10 kB	1
8-RL101 to 6	EP344136	Relay MY4-O-US-AD4-24V	6
8-CR101, 2	ER376424	Spark Quencher U/L 0.1μ+120 500WV	2
		Capacitor, Vertical Type	
8-C101, 2	EC456041	Elect. 33μF 25WV	2
8-C103	EC220612	Elect. 33μF 25WV	1
8-C104	EC308711	Mylar 0.047μF(K) 50WV	1
8-C105, 6, 7	EC220994	Elect. 10μF 25WV	3
8-C108	EC273464	MP 0.1μF(M) 350WVDC (Tub. type)	1
8-C109	EC220612	Elect. 33μF 25WV	1
8-C110	EC220994	Elect. 10μF 25WV	1
		Resistor, Stopper Type	
8-R101	ER211465	Carbon RD1/4 1k(J)	1
8-R102	ER362485	Carbon RD1/4 330k(J)	1

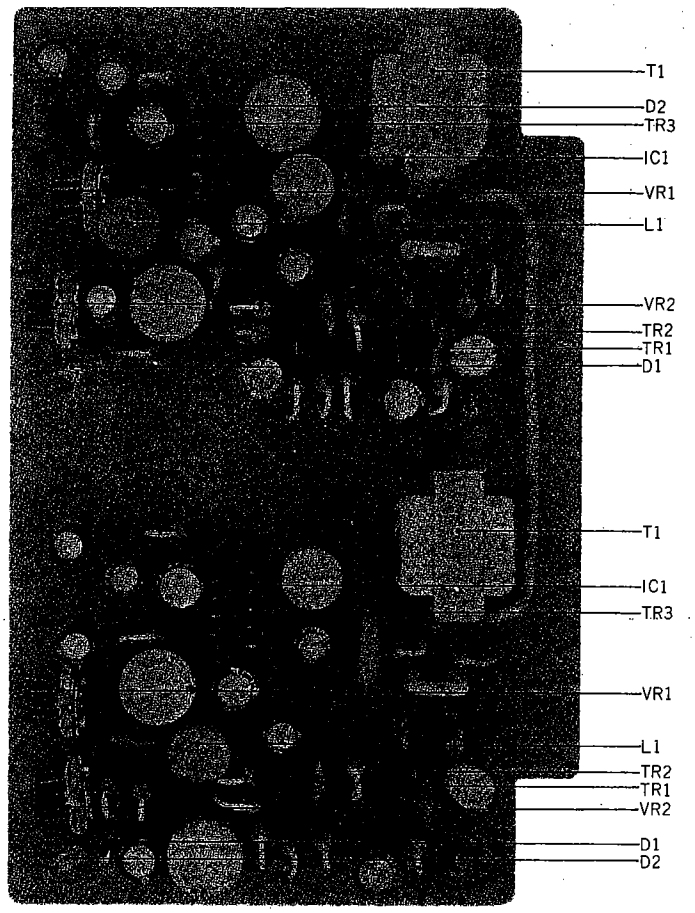
FIG. 8 PHOTO OF SYS. CON. P.C. BOARD (KD-A1001A)



Symbol No.	Parts No.	Description	Q'ty	Symbol No.	Parts No.	Description	Q'ty
8-R103	ER336442	Carbon RD1/4 10k(J)	1	8-R119	ER357456	Carbon RD1/4 2.2k(J)	1
8-R104, 5	ER212883	Carbon RD1/4 4.7k(J)	2	8-R120	ER213300	Carbon RD1/4 680(J)	1
8-R106	ER362485	Carbon RD1/4 330k(J)	1	8-R121	ER391623	Metal Oxide Film 1W 1k(K)	1
8-R107	ER212883	Carbon RD1/4 4.7k(J)	1	8-R122	ER539065	Carbon RD1/4W 1.6k(J)	1
8-R108	ER211465	Carbon RD1/4 1k(J)	1	8-R123	ER213300	Carbon RD1/4 680(J)	1
8-R109	ER212883	Carbon RD1/4 4.7k(J)	1	8-R124	ER211667	Carbon RD1/4 100(J)	1
8-R110	ER357456	Carbon RD1/4 2.2k(J)	1	8-R125	ER336442	Carbon RD1/4 10k(J)	1
8-R111	ER343078	Carbon RD1/4 2.7k(J)	1	8-R126, 27	ER211465	Carbon RD1/4 1k(J)	2
8-R112	ER212883	Carbon RD1/4 4.7k(J)	1	8-R128	ER212883	Carbon RD1/4 4.7k(J)	1
8-R113	ER357456	Carbon RD1/4 2.2k(J)	1	8-R129	ER213030	Carbon RD1/4 5.6k(J)	1
8-R114	ER343078	Carbon RD1/4 2.7k(J)	1	8-R130	ER211465	Carbon RD1/4 1k(J)	1
8-R115	ER212883	Carbon RD1/4 4.7k(J)	1	8-R131	ER336442	Carbon RD1/4 10k(J)	1
8-R116	ER357456	Carbon RD1/4 2.2k(J)	1	8-R132	ER211465	Carbon RD1/4 1k(J)	1
8-R117	ER343078	Carbon RD1/4 2.7k(J)	1	8-R133	ER380147	Carbon RD1/4 10(J)	1
8-R118	ER391623	Metal Oxide Film 1W 1k(K)	1	8-R134	ER304290	Carbon RD1/4 10(J)	1

When ordering parts, please describe Parts Number, Serial Number, and Model Number in detail.

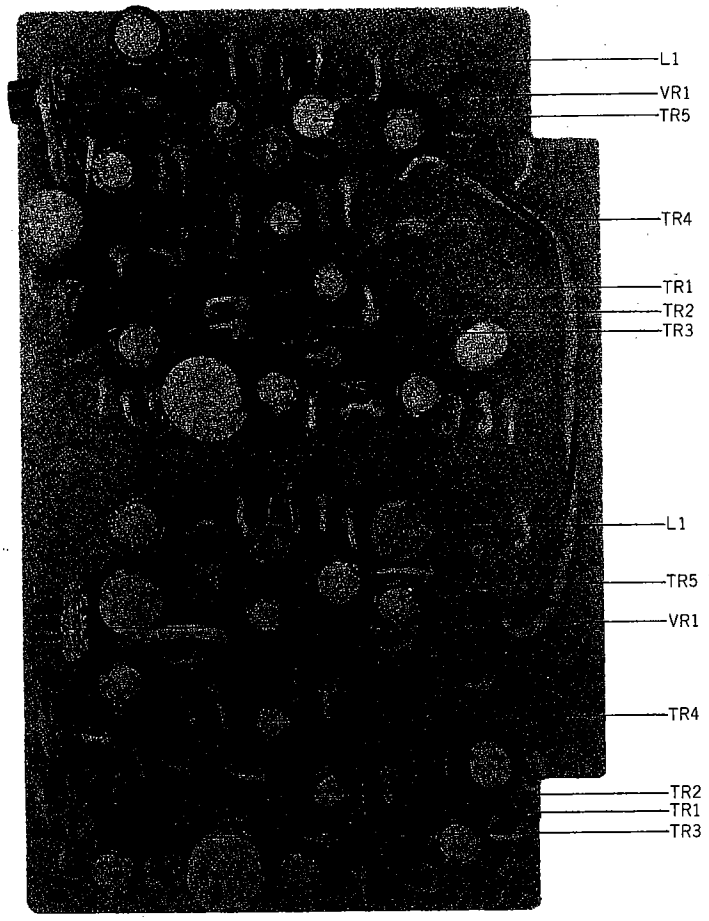
FIG. 9 PHOTO OF P.B. AMP. P.C. BOARD (MS-5022)



P.B. AMP. P.C. BOARD (MS-5022) BLOCK

Symbol No.	Parts No.	Description	Q'ty
9-1x	BA513325	P.B. Amp. P.C. Board Comp. (MS-5022)	1
9-IC1	EI412413	Line Amp. I.C. LD-3141	2
9-TR1, 2	ET234854	Transistor 2SC458LG(C)	4
9-TR3	ET379462	Transistor 2SC711(D) (E)	2
9-D1, 2	ED219464	Germanium Diode 1N34A	4
9-VR1	EV221850	Semi-fixed Volume V10K-5 20 kB	2
9-VR2	EV398812	Semi-fixed Volume V10K-5 5 kB	2
9-L1	EO244012	Ferri Inductor FL9H 22MH(J)	2
9-T1	BT247768	Head Phone Trans. N19-5921S	2
		Capacitor, Vertical Type	
9-C1	EC329850	VFM 220PF(J) 50WV	2
9-C2	EC432810	Elect. 10μF 16WV (noiseless)	2
9-C3	EC290531	VFM 100PF(K) 50WV	2
9-C4	EC329771	Elect. 47μF 6.3WV	2
9-C5	EC250841	Mylar 0.01μF(J) 50WV	2
9-C6	EC290531	VFM 100PF(K) 50WV	2
9-C7	EC450055	Elect. 1μF 25WV	2
9-C8	EC329771	Elect. 47μF 6.3WV	2
9-C9	EC476965	Elect. 47μF 25WV (noiseless)	2
9-C10	EC336126	Elect. 47μF 25WV	2
9-C11	EC329850	VFM 220PF(J) 50WV	2
9-C12	EC320051	Elect. 10μF 16WV	2
9-C13	EC329771	Elect. 47μF 6.3WV	2
9-C14	EC290520	VFM 100PF(J) 50WV	2
9-C15	EC220994	Elect. 10μF 25WV	2
9-C16	EC336104	Elect. 100μF 6.3WV	2
9-C17	EC450055	Elect. 1μF 25WV	2
9-C18	EC220994	Elect. 10μF 25WV	2
9-C19	EC450055	Elect. 1μF 25WV	2
9-C20	EC290520	VFM 100PF(J) 50WV	2
		Resistor, Stopper Type	
9-R1	ER346601	Carbon RD1/4 47k(J)	2
9-R2	ER336442	Carbon RD1/4 10k(J)	2
9-R3	ER362485	Carbon RD1/4 330k(J)	2
9-R4	ER212681	Carbon RD1/4 330(J)	2
9-R5	ER426857	Carbon RD1/4 270k(J)	2
9-R6	ER357570	Carbon RD1/4 150k(J)	2
9-R7	ER212264	Carbon RD1/4 22k(J)	2
9-R8	ER212477	Carbon RD1/4 3.3k(J)	2
9-R9	ER212883	Carbon RD1/4 4.7k(J)	2
9-R10	ER212264	Carbon RD1/4 22k(J)	2
9-R11	ER306887	Carbon RD1/4 15k(J)	2
9-R12	ER212264	Carbon RD1/4 22k(J)	2
9-R13	ER429996	Carbon RD1/4 470k(J)	2
9-R14	ER357456	Carbon RD1/4 2.2k(J)	2
9-R15	ER212264	Carbon RD1/4 22k(J)	2

FIG. 10 PHOTO OF REC. AMP. P.C. BOARD (MS-5023)



REC. AMP. P.C. BOARD (MS-5023) BLOCK

Symbol No.	Parts No.	Description	Q'ty
10-1x	BA513336	Rec. Amp. P.C. Board Comp. (MS-5023)	1
10-TR1,2,3	ET234854	Transistor 2SC458LG(C)	6
10-TR4	ET379462	Transistor 2SC711(D) (E)	2
10-TR5	ET446736	Transistor 2SC968(2) (3)	2
10-VR1	EV398812	Semi-fixed Volume V10k-5 5 kB	2
10-L1	EO512954	Ferri Inductor FL9H 560μH(K)	2
		Capacitor, Vertical Type	
10-C1	EC432810	Elect. 10μF 16WV (noiseless)	2
10-C2	EC383501	Mylar 0.001μF(M) 50WV	2
10-C3	EC329771	Elect. 47μF 6.3WV	2
10-C4	EC399690	VFM 33PF(J) 50WV	2
10-C5	EC290531	VFM 100PF(K) 50WV	2
10-C6	EC320051	Elect. 10μF 16WV	2
10-C7	EC329771	Elect. 47μF 6.3WV	2
10-C8	EC476965	Elect. 47μF 25WV (noiseless)	2
10-C9	EC336126	Elect. 47μF 25WV	2
10-C10	EC320051	Elect. 10μF 16WV	2
10-C11	EC290531	VFM 100PF(K) 50WV	2
10-C12	EC329771	Elect. 47μF 6.3WV	2
10-C13	EC220994	Elect. 10μF 25WV	2
10-C14	EC336104	Elect. 100μF 6.3WV	2
10-C15	EC368370	Mylar 0.15μF(J) 50WV	2
10-C16	EC379170	Mylar 0.1μF(J) 50WV	2
10-C17	EC320051	Elect. 10μF 16WV	2
10-C18	EC423033	VFM 680PF(K) 50WV	2
10-C19	EC220994	Elect. 10μF 25WV	2
10-C20	EC379157	Mylar 0.033μF(J) 50WV	2

Symbol No.	Parts No.	Description	Q'ty
		Resistor, Stopper Type	
10-R1, 2	ER336442	Carbon RD1/4 10k(J)	4
10-R3	ER362485	Carbon RD1/4 330k(J)	2
10-R4	ER213300	Carbon RD1/4 680(J)	2
10-R5	ER357570	Carbon RD1/4 150k(J)	2
10-R6	ER212264	Carbon RD1/4 22k(J)	2
10-R7	ER346994	Carbon RD1/4 18k(J)	2
10-R8	ER343078	Carbon RD1/4 2.7k(J)	2
10-R9	ER211320	Carbon RD1/4 1.5k(J)	2
10-R10	ER357456	Carbon RD1/4 2.2k(J)	2
10-R11	ER212883	Carbon RD1/4 4.7k(J)	2
10-R12	ER349942	Carbon RD1/4 8.2k(J)	2
10-R13	ER211757	Carbon RD1/4 100k(J)	2
10-R14	ER357412	Carbon RD1/4 220(J)	2
10-R15	ER211757	Carbon RD1/4 100k(J)	2
10-R16	ER349907	Carbon RD1/4 33k(J)	2
10-R17	ER357456	Carbon RD1/4 2.2k(J)	2
10-R18	ER212681	Carbon RD1/4 330(J)	2
10-R19	ER349784	Carbon RD1/4 390(J)	2
10-R20	ER350100	Carbon RD1/4 68k(J)	2
10-R21	ER212681	Carbon RD1/4 330(J)	2
10-R22	ER336442	Carbon RD1/4 10k(J)	2
10-R23	ER343078	Carbon RD1/4 2.7k(J)	2
10-R24	ER346994	Carbon RD1/4 18k(J)	2
10-R25	ER352045	Carbon RD1/4 3.9k(J)	2
10-R26	ER211465	Carbon RD1/4 1k(J)	2
10-R27	ER361563	Carbon RD1/4 180(J)	2
10-R28	ER336442	Carbon RD1/4 10k(J)	2
10-R29	ER212264	Carbon RD1/4 22k(J)	2
10-R30	ER211667	Carbon RD1/4 100(J)	2

When ordering parts, please describe Parts Number, Serial Number, and Model Number in detail.

FIG. 11 PHOTO OF OSC. P.C. BOARD (KF-5010)

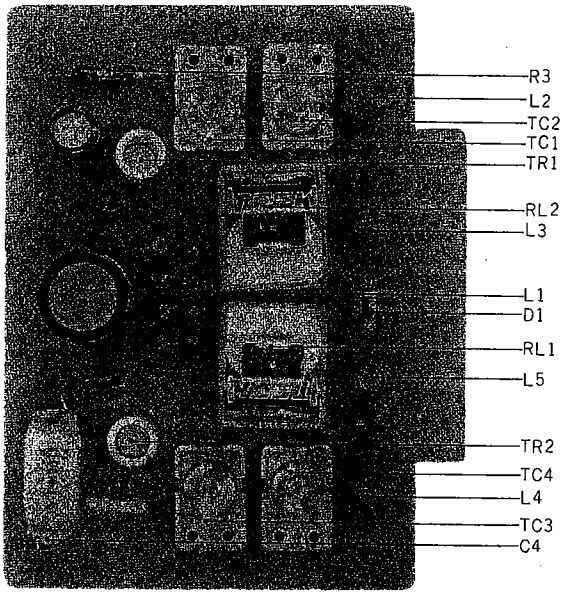
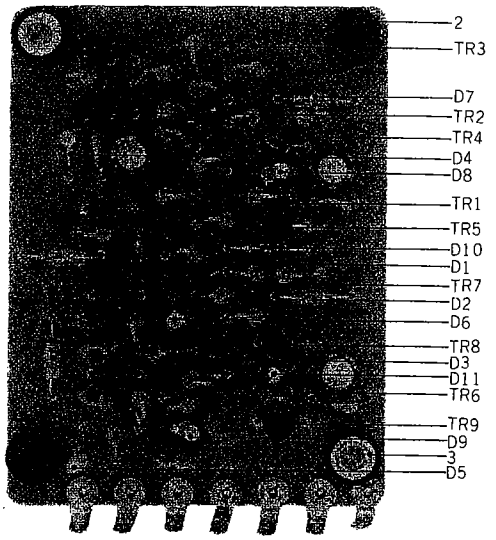


FIG. 12 PHOTO OF AUTO REPEAT P.C. BOARD (KF-2013)



OSC. P.C. BOARD (KF-5010) BLOCK

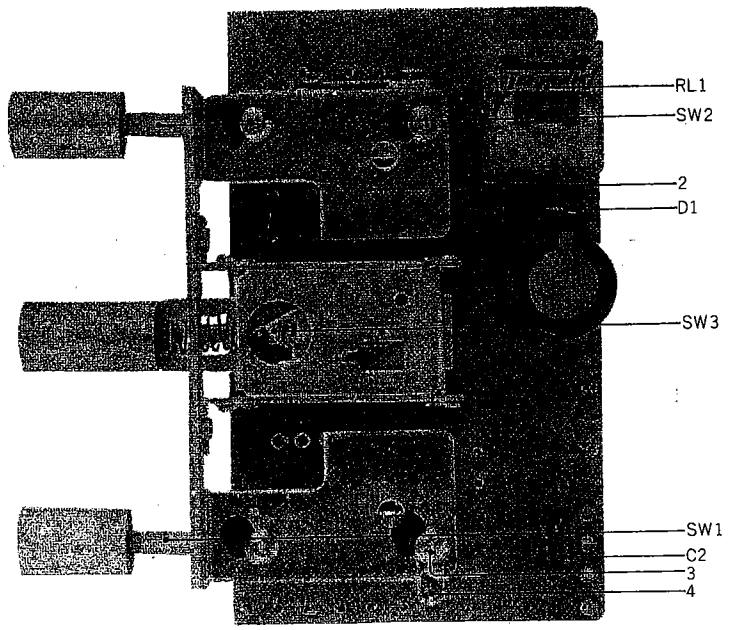
Symbol No.	Parts No.	Description	Q'ty
11-1x	BA442282	OSC. P.C. Board Comp. (KF-5010)	1
11-TR1, 2	ET304255	Transistor 2SC971(2) (3) (red)	2
11-D1	ED224526	Silicon Diode 10D1	1
11-L1	EO383365	OSC. Coil OT-204	1
11-L2 to 5	EO424866	Ferri Inductor FL7H 1.2MH(J)	4
11-RL1, 2	EP315461	Relay TECK-19 1500	2
11-TC1 to 4	EC398878	Trimmer Condenser C-1P-2 50 to 70PF	4
		Capacitor, Vertical Type	
11-C1, 2	EC250841	Mylar 0.01μF(J) 50WV	2
11-C3	EC220678	Elect. 47μF 25WV	1
11-C4	EC442080	Plustic Film 4500PF(J) 500WV	1
11-C5 to 8	EC250683	Mylar 0.0022μF(J) 50WV	4
		Resistor, Stopper Type	
11-R1, 2	ER315944	Carbon RD1/4 3.3(J)	2
11-R3	ER398856	Metal Oxide Film 1W 100(K)	1
11-R4	ER304402	Carbon RD1/4 470(J)	1
11-R5	ER212883	Carbon RD1/4 4.7k(J)	1

AUTO REPEAT P.C. BOARD (KF-2013) BLOCK

Symbol No.	Parts No.	Description	Q'ty
12-1x	BA442214	Auto Repeat P.C. Board Comp. (KF-2013)	1
12-TR1 to 9	ET398711	Transistor 2SC945(Q) (R)	9
12-D1 to 11	ED219464	Germanium Diode 1N34A	11
12-2	EZ246611	P.C. Board Cushion	4
12-3	EZ237148	Eyelet D4x7x10	2
		Capacitor, Vertical Type	
12-C1	EC250885	Mylar 0.01μF(K) 50WV	1
12-C2	EC220994	Elect. 10μF 25WV	1
12-C3	EC308711	Mylar 0.047μF(K) 50WV	1
12-C4, 5	EC220994	Elect. 10μF 25WV	2
		Resistor, Stopper Type	
12-R1	ER336442	Carbon RD1/4 10k(J)	1
12-R2, 3	ER212883	Carbon RD1/4 4.7k(J)	2
12-R4	ER213030	Carbon RD1/4 5.6k(J)	1
12-R5	ER212264	Carbon RD1/4 22k(J)	1
12-R6	ER336442	Carbon RD1/4 10k(J)	1
12-R7	ER212883	Carbon RD1/4 4.7k(J)	1
12-R8	ER213030	Carbon RD1/4 5.6k(J)	1
12-R9	ER211465	Carbon RD1/4 1k(J)	1
12-R10	ER212264	Carbon RD1/4 22k(J)	1
12-R11	ER212883	Carbon RD1/4 4.7k(J)	1
12-R12	ER357456	Carbon RD1/4 2.2k(J)	1
12-R13	ER212883	Carbon RD1/4 4.7k(J)	1
12-R14	ER213030	Carbon RD1/4 5.6k(J)	1
12-R15	ER211465	Carbon RD1/4 1k(J)	1
12-R16	ER211320	Carbon RD1/4 1.5k(J)	1
12-R17	ER212883	Carbon RD1/4 4.7k(J)	1
12-R18	ER213030	Carbon RD1/4 5.6k(J)	1
12-R19	ER212883	Carbon RD1/4 4.7k(J)	1
12-R20	ER213030	Carbon RD1/4 5.6k(J)	1
12-R21	ER212883	Carbon RD1/4 4.7k(J)	1
12-R22	ER213030	Carbon RD1/4 5.6k(J)	1
12-R23	ER211465	Carbon RD1/4 1k(J)	1
12-R24	ER212883	Carbon RD1/4 4.7k(J)	1
12-R25	ER213030	Carbon RD1/4 5.6k(J)	1
12-R26	ER211465	Carbon RD1/4 1k(J)	1
12-R27, 28	ER212883	Carbon RD1/4 4.7k(J)	2
12-R29, 30	ER357456	Carbon RD1/4 2.2k(J)	2
12-R31, 32	ER343078	Carbon RD1/4 2.7k(J)	2

When ordering parts, please describe Parts Number, Serial Number, and Model Number in detail.

FIG. 13 PHOTO OF SWITCH P.C. BOARD (KF-2012)



SWITCH P.C. BOARD (KF-2012) BLOCK

Symbol No.	Parts No.	Description	Q'ty
13-1x	BA442225	Switch P.C. Board Comp. (KF-2012)	1
13-SW1, 2	ES426971	Push Switch UEG-62L (without Knob)	2
13-SW3	ES442045	Push Switch SPM-015	1
13-D1	ED224526	Silicon Diode 10D1	1
13-RL1	EP383321	Relay TECK-36 DC22V1000	1
13-2	EZ441674	Switch Table	1
13-3	ZW442585	Screw, binding head 2.6x4	4
13-4	ZW316800	Earth Lug, M2.6	1
13-5x	EJ441685	18P Terminal P.C. Board	1
		Capacitor, Vertical Type	
13-C1	EC331817	Elect. 470μF 25WV	1
13-C2	EC455894	Hi-Q 490PF(J) 500WV	1
13-R1	ER304402	Carbon Resistor RD1/4 470(J)	1

FIG. 14 PHOTO OF EQUALIZER SWITCH P.C. BOARD (KF-2014)

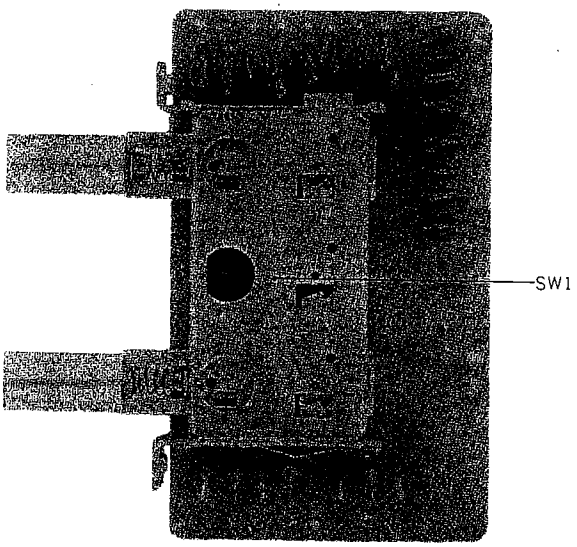
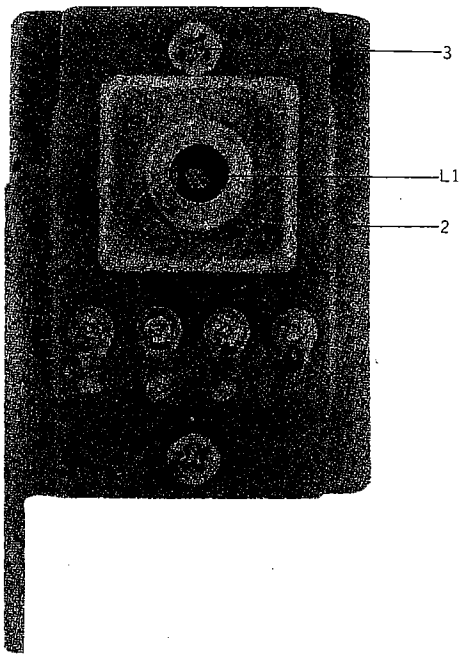


FIG. 15 PHOTO OF COIL P.C. BOARD (KD-1097)



EQUALIZER SWITCH P.C. BOARD (KF-2014) BLOCK

Symbol No.	Parts No.	Description	Q'ty
14-1x	BA513268	Equalizer Switch P.C. Board Comp. (KF-2014)	1
14-SW1	ES447827	Push Switch UM32420	1
14-2x	EJ441685	18P Terminal P.C. Board	1
		Capacitor, Vertical Type	
14-C1	EC368368	Mylar 0.056μF(J) 50WV	1
14-C2	EC302321	Mylar 0.01μF(J) 50WV	1
14-C3	EC438052	Mylar 0.082μF(J) 50WV	1
14-C4	EC329861	Mylar 0.027μF(J) 50WV	1
14-C5	EC368368	Mylar 0.056μF(J) 50WV	1
14-C6	EC302321	Mylar 0.01μF(J) 50WV	1
14-C7	EC438052	Mylar 0.082μF(J) 50WV	1
14-C8	EC329861	Mylar 0.027μF(J) 50WV	1
14-C9	EC368368	Mylar 0.056μF(J) 50WV	1
14-C10	EC302321	Mylar 0.01μF(J) 50WV	1
14-C11	EC438052	Mylar 0.082μF(J) 50WV	1
14-C12	EC329861	Mylar 0.027μF(J) 50WV	1
14-C13	EC368368	Mylar 0.056μF(J) 50WV	1
14-C14	EC302321	Mylar 0.01μF(J) 50WV	1
14-C15	EC438052	Mylar 0.082μF(J) 50WV	1
14-C16	EC329861	Mylar 0.027μF(J) 50WV	1
14-C17	EC336216	VFM 330PF(J) 50WV	1
14-C19	EC336216	VFM 330PF(J) 50WV	1
14-C21	EC336216	VFM 330PF(J) 50WV	1
14-C23	EC336216	VFM 330PF(J) 50WV	1
		Resistor, Stopper Type	
14-R1	ER212883	Carbon RD1/4 4.7k(J)	1
14-R2	ER212872	Carbon RD1/4 4.3k(J)	1
14-R3	ER212883	Carbon RD1/4 4.7k(J)	1
14-R4	ER212872	Carbon RD1/4 4.3k(J)	1
14-R5	ER212883	Carbon RD1/4 4.7k(J)	1
14-R6	ER212872	Carbon RD1/4 4.3k(J)	1
14-R7	ER212883	Carbon RD1/4 4.7k(J)	1
14-R8	ER212872	Carbon RD1/4 4.3k(J)	1

COIL P.C. BOARD (KD-1097) BLOCK

Symbol No.	Parts No.	Description	Q'ty
15-1x	BA497845	Coil P.C. Board Comp. (KD-1097)	1
15-L1	EO403446	Variable Coil VI2031 SC-01	1
15-2	EZ495832	Coil P.C. Board Base	1
15-3	ZW413155	Screw, binding head 3x6	2

FIG. 16 (A) ILLUSTRATION OF POWER SUPPLY BLOCK

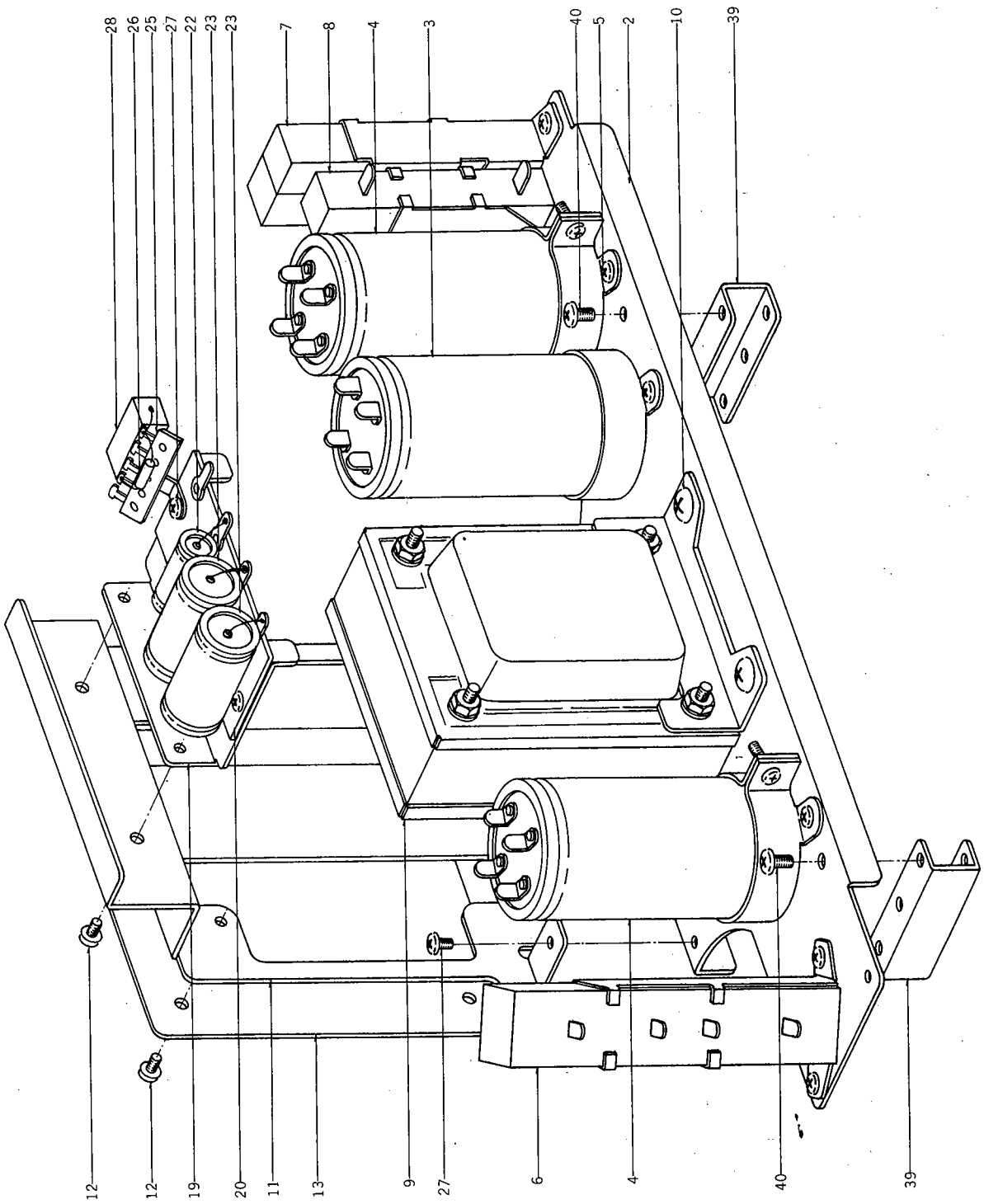
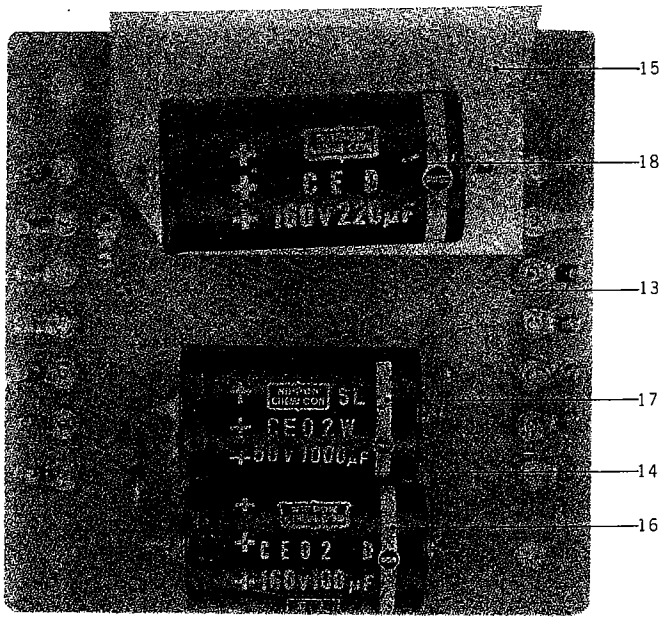
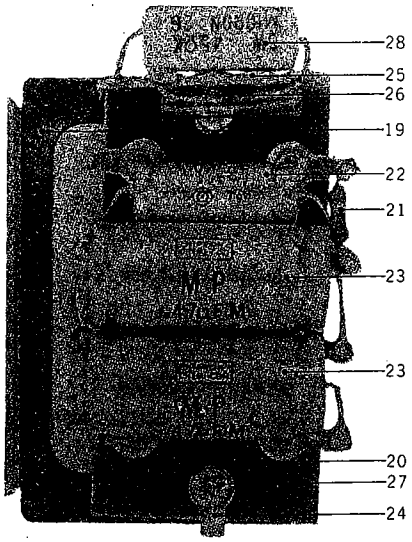


FIG. 16 (B, C) PHOTO OF POWER SUPPLY BLOCK



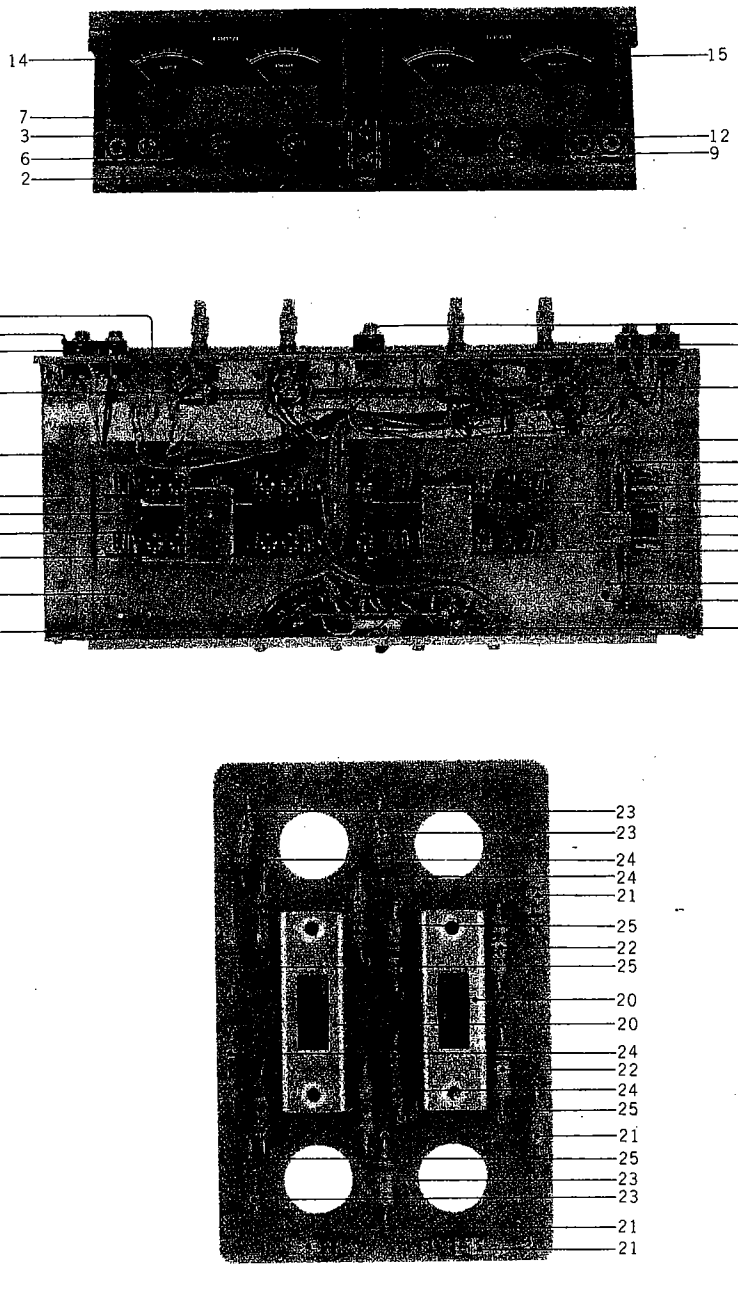


POWER SUPPLY BLOCK

Ref. No.	Parts No.	Description	Schematic No.	Q'ty
16-1x	BP442304	Power Supply Block Comp.	KF	1
16-2	UM488924	Trans. Table	KH-2052	1
16-3	EC434081	MP/C. 3+0.5μF 200WV (Lug type Uni/D.)	24-9-58	1
16-4	EC398632	MP/C. 3+1μF 260WV (Lug type Uni/D.)	24-9-52	2
16-5	ZW472274	Tapping Screw #2 3x6		11
16-6	ER426688	Cement/R. H40H2B H40H2B(150+350)K	35-16-23	1
16-7	ER441955	Cement/R. H1B (60x1.5k+500)K	35-16-24	1
16-8	ER472296	Cement/R. H20B 220(K)	35-16-16	1
16-9	BT466672	Power Trans. KDT-2	38-4-147	1
16-10	ZW468112	Tapping Screw #2 4x8 (truss)		4
16-11	MZ465772	Trans. Table D	KD-A2008	1
16-12	ZW490228	Tapping Screw #2 3x8		6
16-13	EA465851	Capacitor P.C. Board	KD-A2013	1
16-14	ED224550	Silicon Diode 10D4	45-2-16	1
16-15	EZ472206	Capacitor Insulator Plate B	KD-2064	1
16-16	EC316091	Elect./C. 100μF 160WV (Tub. type)	24-14-14	1
16-17	EC365692	Elect./C. 1000μF 50WV (Tub. type)	24-13-15	1
16-18	EC346746	Elect./C. 220μF 160WV (Tub. type)	24-14-8	1
16-19	EZ397282	Capacitor Retaining Base	KD-2027	1
16-20	EZ398946	Terminal Plate SP-0501 4P (B type)	33-2-17	1
16-21	ER430143	Carbon/R. RD1/4 120(J) (Insu. type)	35-9-5	1
16-22	EC273464	MP/C. 0.1μF(M) 350WVDC (Tub. type)	24-9-4	1
16-23	EC341842	MP/C. 0.47μF(M) 300WVAC (Tub. type)	24-9-35	2
16-24	ZW273778	Earth Lug, M3		1
16-25	EJ255115	Lug Plate VB2L2	33-4-3	1
16-26	ED224550	Silicon Diode 10D4	45-2-16	1
16-27	ZW323728	Screw, binding head 3x5		4
16-28	ER466986	Cement/R. S5W 45(K) (Wire-wound type)	35-16-3	1
16-29x	EZ328320	Nylon Clip HP-5N		2
16-30x	ZW462194	Tapping Screw #2 3x8(pan), w/washer		2
16-31x	EZ397304	Frequency Change Switch Plate A	KD-2043	1
16-32x	ES375478	Slide Switch ESD-279DU	25-3-23	2
16-33x	ZW371856	Iso Screw, binding head 3x5		2
16-34x	ZW440291	Iso Screw, countersunk head 3x6		2
16-35x	EJ233370	Power Plug Socket S-18010 (Volt. Select.)	40-2-3	1
16-36x	EF338387	Fuse ST-2 1.5A	39-1-26	1
16-37x	EF277413	Fuse ST-2 2A	39-1-26	1
16-38x	EJ205975	Cramp Terminal 1-SD	32-1-7	1
16-39	MZ397170	Trans. Table C	KD-1065	2
16-40	ZW417150	Screw, pan head 4x6		4

When ordering parts, please describe Parts Number, Serial Number, and Model Number in detail.

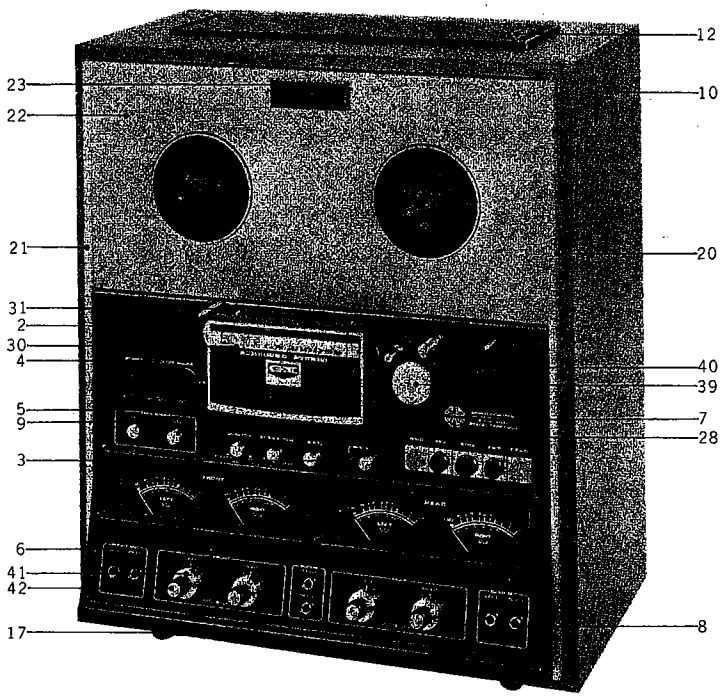
FIG. 17 PHOTO OF AMPLIFIER ASSEMBLY BLOCK



AMPLIFIER ASSEMBLY BLOCK

Ref. No.	Parts No.	Description	Schematic No.	Q'ty
	FRONT FRAME BLOCK			
17-1x	BZ447647	Front Frame Block Comp.	KF	1
17-2	EZ441797	Amp. Frame	KF-5005	2
17-3	EJ441810	Mic. Jack Table	KF-5007	2
17-4	EJ433844	Mic. Jack 2PMJ4	31-2-35	4
17-5x	EZ225180	Nylon Collar, Jack	LD-520	4
17-6	ZW260368	Washer (Fiber)D9.2x18x0.5t		4
17-7	ZW375153	E Jack Nut		6
17-8x	ZW447772	Tapping Screw #2 3x6(BR)		6
17-9	EJ441808	Head Phone Jack Stand	KF-5006	1
17-10	EJ442078	Mic. Jack 3PMJ4	31-2-36	2
17-11x	ZW436026	Washer (SPC)D9.2x15x0.5t		2
17-12	EV442102	Double Volume DJ50A 50 kAx2	36-3-33	4
17-13x	ER329308	Carbon/R. RD1/4 47k(J) (Insu. type)	35-9-5	4
17-14	EM442113	VU Meter KL-266A-1(Front)	46-1-45	1
17-15	EM442124	VU Meter KL-266A-2 (Rear)	46-1-46	1
17-16x	SZ223042	Shield Plate Moltplene 5tx30x85	RD-538	2
17-17x	ZW273756	Nut, M3		8
	JACK PLATE BLOCK			
17-18x	BZ513314	Jack Plate Block Comp.	KF-2	1
17-19	EJ441865	Jack Plate, w/jack	KF-5002	1
17-20	ES446973	Slide Switch SL-242B4D	25-3-51	2
17-21	ER213873	Carbon/R. RD1/4 150k(J) (Insu. type)	35-9-5	4
17-22	ER213715	Carbon/R. RD1/4 100k(J) (Insu. type)	35-9-5	2
17-23	ER345756	Carbon/R. RD1/4 68k(J) (Insu. type)	35-9-5	4
17-24	ER214536	Carbon/R. RD1/4 6.8k(J) (Insu. type)	35-9-5	4
17-25	ER430288	Carbon/R. RD1/4 680(J) (Insu. type)	35-9-5	4
17-26x	ER345712	Carbon/R. RD1/4 22k(J) (Insu. type)	35-9-5	4
17-27x	ER213647	Carbon/R. RD1/4 10k(J) (Insu. type)	35-9-5	4
	ASSEMBLY BLOCK			
17-28	EZ441764	Amp. Chassis	KF-5001	1
17-29x	EZ397743	P.C. Board Prop	KD-2044	6
17-30x	ZW413155	Screw, binding head 3x6		6
17-31	EZ441775	OSC. Shield Plate	KF-5003	1
17-32	ZW447772	Tapping Screw #2 3x6(BR)		10
17-33x	EZ441786	P.C. Board Retaining Prop	KF-5004	3
17-34x	ZW417025	Screw, binding head 3x8, w/washer		3
17-35	EZ441821	Amp. Side Plate (Right)	KF-5008	1
17-36	EZ441832	Amp. Side Plate (Left)	KF-5008	1
17-37	EJ347670	22P Multi-jack-3 3250-022-001S	31-4-13	4
17-38x	EJ310871	18P Multi-jack J-2 3250-018-001	31-4-11	2
17-39	EJ368785	14P Multi-jack 3250-014-001	31-4-14	2
17-40x	EJ299834	6P Mate-N-Lock Plug Housing 1-480273-0	52-1-2	1
17-41x	EJ229353	Socket Contact 60510-1	52-1-1	6
17-42x	ZW273778	Earth Lug, M3		5
17-43	BA513325	P.B. P.C. Board Comp. (MS-5022)		2
17-44	BA513336	Rec. P.C. Board Comp. (MS-5023)		2
17-45	BA442282	OSC. P.C. Board Comp. (KF-5010)		1
17-46	EZ441854	P.C. Board Retainer	KF-5013	1
17-47	EZ411287	P.C. Board Retaining Metal	LF-5027	2
17-48	ZW413741	Screw, binding head 3x8		3

FIG. 18 PHOTO OF FINAL ASSEMBLY BLOCK



FINAL ASSEMBLY BLOCK

Ref. No.	Parts No.	Description	Schematic No.	Q'ty
	AMP. PANEL BLOCK			
18-1x	BZ513235	Amp. Panel Block Comp.	KF-2	1
18-2	SP441437	Amp. Panel	KF-6007	1
18-3	EZ426780	Illumination Escutcheon(red)	61-5023	1
18-4	SM441448	Amp. Panel Name Plate A	KF-6008	1
18-5	SM441450	Amp. Panel Name Plate B	KF-6009	1
18-6	SM441461	Amp. Panel Name Plate C	KF-6010	1
18-7	SM512897	Panel Plate	KF-6202	1
18-8	EZ441483	Jack Collar	KF-6016	6
18-9	SK441472	Button Collar	KF-6017	6
	CASE BLOCK			
18-10	BC442326	Case Block Comp.	KF	1
18-11x	ZW447963	Tapping Screw #1 3x10(truss)		25
18-12	SZ382230	Ventilator (Upper)	RD-A404	1
18-13x	ZW439672	Screw, truss head 3x14, without groove		4
18-14x	ZW273756	Nut, M3		4
18-15x	SZ382241	Ventilator Retaining Plate	RD-A405	1
18-16x	ZW439672	Tapping Screw #1 4x10(truss)		1
18-17	SZ382230	LM Rubber Foot	LM-404	4
18-18x	ZW419646	Washer (SPC)D4.5x9.8x0.5t		4
18-19x	ZW403571	Wood Screw, round head 4.5x20		4

Ref. No.	Parts No.	Description	Schematic No.	Q'ty
	ASSEMBLY BLOCK			
18-20	SP441360	Sash (Right)	KF-6004	1
18-21	SP491905	Sash (Left)	KF-6004	1
18-22	SP513347	Mech. Panel B	KF-6005	1
18-23	SZ397618	Counter Escutcheon	KD-6008	1
18-24x	ZW323728	Screw, binding head 3x5		4
18-25x	ZW200384	Screw, countersunk head 3x6		2
18-26x	ZW447805	Tapping Screw #2 3x12(BR)		4
18-27x	ZW419793	Screw, countersunk head 3x12		2
18-28	SZ441404	Head Cover Base	KF-6012	1
18-29x	ZW201060	Screw, truss head 3x12		2
18-30	SM512910	Head Cover Name Plate	KF-6201	1
18-31	SC426407	Head Cover	KD-A6001	1
18-32x	ZW201150	Screw, truss head 3x6 (black)		2
18-33x	SZ377190	LM Rubber Foot	LM-404	4
18-34x	ZW419646	Washer (SPC)D4.5x9.8x0.5t		4
18-35x	ZW421503	Tapping Screw #1 4x30(truss)		4
18-36x	ZW259806	Washer (SPC-1)D4.5x12.8x1t		6
18-37x	ZW200621	Tapping Screw #1 4x25(truss)		2
18-38x	ZW366377	Tapping Screw #1 4x45(truss)		4
18-39	SK425158	Pinch Roller Cap	MS-6020	1
18-40-	MP424023	Pinch Roller (KD)	KD-1084	1
18-41	SK409476	Amp. Knob B	LF-6023	4
18-42	SK409511	Amp. Knob D	LF-6025	4
18-43x	SZ397563	Ventilator Panel (Rear)	KD-6015	1
18-44x	EF304626	Fuse ST-4 1A	39-1-28	1
18-45x	EF338387	Fuse ST-2 1.5A	39-1-26	1

When ordering parts, please describe Parts Number, Serial Number, and Model Number in detail.

INDEX

Parts No.	Ref. No. & Symbol No.	Parts No.	Ref. No. & Symbol No.	Parts No.	Ref. No. & Symbol No.	Parts No.	Ref. No. & Symbol No.	Parts No.	Ref. No. & Symbol No.
BA423876	7-1x	EC320051	9-C12	ED224526	8-D122, 23	ER212264	12-R10	ER345756	17-23
BA426284	8-1x	EC320051	10-C6	ED224526	8-D126	ER212477	9-R8	ER346601	9-R1
BA442214	4-151	EC320051	10-C10	ED224526	11-D1	ER212681	7-R252	ER346994	10-R7
BA442214	12-1x	EC320051	10-C17	ED224526	13-D1	ER212681	9-R4	ER346994	10-R24
BA442225	6-12	EC329771	9-C4	ED224550	8-D127	ER212681	10-R18	ER349784	10-R19
BA442225	13-1x	EC329771	9-C8	ED224550	16-14	ER212681	10-R21	ER349907	10-R16
BA442247	6-3x	EC329771	9-C13	ED224550	16-26	ER212872	14-R2	ER349942	10-R12
BA442247	6-16x	EC329771	10-C3	ED321390	7-TH201	ER212872	14-R4	ER350100	10-R20
BA442282	11-1x	EC329771	10-C7	ED329128	7-D252	ER212872	14-R6	ER352045	10-R25
BA442282	17-45	EC329771	10-C12	ED329130	7-D251	ER212872	14-R8	ER357412	10-R14
BA497845	15-1x	EC329850	7-C209	ED520762	7-D253	ER212883	6-20	ER357456	7-R203
BA513268	6-13	EC329850	9-C1	EF277413	16-37x	ER212883	7-R214	ER357456	7-R210
BA513268	14-1x	EC329850	9-C11	EF304626	18-44x	ER212883	7-R218	ER357456	7-R219
BA513325	9-1x	EC329861	14-C4	EF338387	16-36x	ER212883	8-R104, 5	ER357456	7-R222, 23
BA513325	17-43	EC329861	14-C8	EF338387	18-45x	ER212883	8-R107	ER357456	7-R251
BA513336	10-1x	EC329861	14-C12	EI412413	9-IC1	ER212883	8-R109	ER357456	7-R254
BA513336	17-44	EC329861	14-C16	EJ205975	16-38x	ER212883	8-R112	ER357456	8-R110
BC411085	1-34x	EC331705	7-C203	EJ205986	5-18	ER212883	8-R115	ER357456	8-R113
BC442326	18-10	EC331817	7-C254	EJ222748	5-5	ER212883	8-R128	ER357456	8-R116
BH513270	1-1x	EC331817	13-C1	EJ229353	17-41x	ER212883	9-R9	ER357456	8-R119
BM314741	2-1	EC336104	6-22	EJ233370	5-26	ER212883	10-R11	ER357456	9-R14
BM423854	3-1x	EC336104	9-C16	EJ233370	16-35x	ER212883	11-R5	ER357456	10-R10
BP442304	16-1x	EC336104	10-C14	EJ255115	16-25	ER212883	12-R2, 3	ER357456	10-R17
BR398430	2-2x	EC336126	9-C10	EJ299834	17-40x	ER212883	12-R7	ER357456	12-R12
BR398441	2-3x	EC336126	10-C9	EJ310871	5-2	ER212883	12-R11	ER357456	12-R29, 30
BS442258	4-55x	EC336216	14-C17	EJ310871	17-38x	ER212883	12-R13	ER357570	9-R6
BT247768	9-T1	EC336216	14-C19	EJ326430	5-23	ER212883	12-R17	ER357570	10-R5
BT466672	16-9	EC336216	14-C21	EJ347670	17-37	ER212883	12-R19	ER361563	10-R27
BZ398338	4-19x	EC336216	14-C23	EJ368785	17-39	ER212883	12-R21	ER361642	7-R208
BZ398340	4-36x	EC341842	16-23	EJ399823	5-3	ER212883	12-R24	ER362441	7-R202
BZ398362	4-27x	EC346746	16-18	EJ433844	17-4	ER212883	12-R27, 28	ER362485	8-R102
BZ428940	4-1x	EC350684	7-C208	EJ441685	13-5x	ER212883	14-R1	ER362485	8-R106
BZ434992	4-63x	EC350684	7-C255	EJ441685	14-2x	ER212883	14-R3	ER362485	9-R3
BZ435003	1-3x	EC365692	16-17	EJ441808	17-9	ER212883	14-R5	ER362485	10-R3
BZ447647	17-1x	EC368368	14-C1	EJ441810	17-3	ER212883	14-R7	ER376424	4-3x
BZ513235	18-1x	EC368368	14-C5	EJ441865	17-19	ER213030	7-R221	ER376424	4-21x
BZ513257	6-1x	EC368368	14-C9	EJ442078	17-10	ER213030	8-R129	ER376424	8-CR101, 2
BZ513314	17-18x	EC368368	14-C13	EL390576	6-11	ER213030	12-R4	ER376435	4-40x
EA222096	1-50x	EC368370	10-C15	EL390576	6-23	ER213030	12-R8	ER380147	8-R133
EA396898	6-10	EC372148	7-C253	EM442113	17-14	ER213030	12-R14	ER391623	8-R118
EA437736	1-36x	EC379157	10-C20	EM442124	17-15	ER213030	12-R18	ER391623	8-R121
EA441720	6-17	EC379170	10-C16	EO244012	9-L1	ER213030	12-R20	ER398856	11-R3
EA465851	16-13	EC379787	7-C204	EO383365	11-L1	ER213030	12-R22	ER403097	7-R213
EC220151	7-C207	EC383501	10-C2	EO403446	15-L1	ER213030	12-R25	ER403187	7-R212
EC220432	7-C213	EC398632	16-4	EO424866	11-L2 to 5	ER213300	8-R120	ER424078	7-R228
EC220612	8-C103	EC398878	11-TC1 to 4	EO512954	10-L1	ER213300	8-R123	ER426688	16-6
EC220612	8-C109	EC398957	7-C201	EP315461	11-RL1, 2	ER213300	10-R4	ER426857	9-R5
EC220678	11-C3	EC399690	10-C4	EP344136	8-RL101to6	ER213647	17-27x	ER429996	9-R13
EC220994	8-C105,6,7	EC403468	7-C251, 52	EP383321	13-RL1	ER213715	17-22	ER430053	6-19
EC220994	8-C110	EC423033	10-C18	EP398610	4-20	ER213873	17-21	ER430143	16-21
EC220994	9-C15	EC424080	7-C210	EP441990	4-2	ER214536	17-24	ER430288	17-25
EC220994	9-C18	EC432810	9-C2	ER211320	10-R9	ER304290	7-R226	ER441955	16-7
EC220994	10-C13	EC432810	10-C1	ER211320	12-R16	ER304290	8-R134	ER466986	16-28
EC220994	10-C19	EC434081	16-3	ER211465	6-21	ER304402	11-R4	ER472296	16-8
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EC220994	12-C4,5	EC438052	14-C7	ER211465	8-R101	ER306843	7-R255	ER539065	8-R122
EC250661	7-C206	EC438052	14-C11	ER211465	8-R108	ER306887	7-R217	ES246025	4-126
EC250683	11-C5 to 8	EC438052	14-C15	ER211465	8-R126, 27	ER306887	7-R227	ES250064	4-58
EC250841	9-C5	EC438524	7-C211	ER211465	8-R130	ER306887	9-R11	ES250064	4-100
EC250841	11-C1, 2	EC442080	11-C4	ER211465	8-R132	ER315944	11-R1, 2	ES250075	4-38
EC250885	12-C1	EC450055	9-C7	ER211465	10-R26	ER329308	17-13x	ES250075	6-32
EC250918	7-C256	EC450055	9-C17	ER211465	12-R9	ER336442	7-R201	ES317531	4-51
EC251190	7-C202	EC450055	9-C19	ER211465	12-R15	ER336442	7-R205,6,7	ES375478	5-25
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EC273464	8-C108	EC456041	8-C101, 2	ER211465	12-R26	ER336442	8-R125	ES403727	4-131
EC273464	16-22	EC476965	9-C9	ER211667	7-R220	ER336442	8-R131	ES426971	13-SW1, 2
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EC290520	9-C20	EC517116	7-C215	ER211667	10-R30	ER336442	10-R1, 2	ES446973	17-20
EC290531	9-C3	ED219464	8-D104	ER211757	7-R209	ER336442	10-R22	ES447827	14-SW1
EC290531	9-C6	ED219464	8-D106 to 8	ER211757	10-R13	ER336442	10-R28	ET234854	9-TR1, 2
EC290531	10-C5	ED219464	8-D111 to 15	ER211757	10-R15	ER336442	12-R1	ET234854	10-TR1,2,3
EC290531	10-C11	ED219464	8-D120, 21	ER212016	7-R211	ER336442	12-R6	ET304255	11-TR1, 2
EC302321	14-C2	ED219464	8-D124, 25	ER212264	7-R204	ER343078	7-R253	ET338894	8-TR109to11
EC302321	14-C6	ED219464	9-D1, 2	ER212264	9-R7	ER343078	8-R111	ET356984	7-TR202
EC302321	14-C10	ED219464	12-D1 to 11	ER212264	9-R10	ER343078	8-R114	ET356984	7-TR205
EC302321	14-C14	ED224526	6-24	ER212264	9-R12	ER343078	8-R117	ET379462	7-TR201
EC308711	8-C104	ED224526	7-D201,2,4	ER212264	9-R15	ER343078	10-R8	ET379462	7-TR203, 4
EC308711	12-C3	ED224526	8-D101 to 3	ER212264	10-R6	ER343078	10-R23	ET379462	7-TR207
EC316091	16-16	ED224526	8-D110	ER212264	10-R29	ER343078	12-R31, 32	ET379462	9-TR3
EC320051	7-C205	ED224526	8-D116 to 19	ER212264	12-R5	ER345712	17-26x	ET379462	10-TR4

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ET391138	7-TR253	HZ441933	1-42	MZ397462	4-43	ZG407575	4-112	ZW345442	4-13x
ET393581	7-TR251	HZ512111	1-39	MZ397484	4-49	ZG409015	4-142	ZW356883	3-11
ET398711	6-18	HZ803597	1-17	MZ398182	3-15	ZG428927	4-18	ZW366377	18-38x
ET398711	8-TR101to8	MB303535	2-31	MZ400421	3-17	ZG433383	1-60	ZW371856	4-127
ET398711	12-TR1 to 9	MB303535	4-124	MZ402377	4-57	ZG433383	4-91	ZW371856	16-33x
ET398777	7-TR206	MB314987	2-24	MZ402546	1-14	ZG465478	4-110	ZW374128	5-21x
ET399936	7-TR208	MB314987	4-114	MZ405437	3-2	ZG466154	6-33	ZW375153	17-7
ET403042	7-TR209	MC399521	4-97	MZ428343	1-15	ZW200305	1-46	ZW384840	1-52
ET403042	7-TR252	ML314976	2-22	MZ428343	4-8	ZW200384	18-25x	ZW391476	3-7x
ET446736	10-TR5	ML314976	4-113	MZ428343	4-90	ZW200621	18-37x	ZW392940	7-3
EV221826	8-VR102	ML396742	4-109	MZ428343	4-146x	ZW200687	7-7	ZW396786	1-11
EV221850	9-VR1	ML396810	2-23x	MZ432360	4-66	ZW201060	18-29x	ZW397146	4-102x
EV398812	9-VR2	ML396810	4-118	MZ432832	4-65	ZW201150	5-20x	ZW397157	4-119
EV398812	10-VR1	ML396900	4-141	MZ433721	4-145	ZW201150	18-32x	ZW398125	3-5
EV398834	7-VR251	ML397383	4-61	MZ434237	4-150	ZW201475	1-24	ZW398158	3-13
EV426936	8-VR101	ML409083	4-140	MZ434316	4-67	ZW201475	3-18	ZW403222	2-20
EV442102	17-12	MP424023	4-149x	MZ434970	4-68	ZW201508	1-30x	ZW403312	1-44
EV499364	7-VR202	MP424023	18-40	MZ434981	4-72	ZW201508	1-40x	ZW403536	3-14
EZ225180	17-5x	MR317507	2-17	MZ441573	6-5	ZW201835	4-23x	ZW403571	18-19x
EZ237148	12-3	MS217192	4-89	MZ441584	6-9	ZW202061	1-25	ZW411660	4-73
EZ246611	12-2	MS250165	4-134	MZ441595	6-2	ZW202252	1-12	ZW413155	3-19
EZ246936	5-17x	MS342000	2-6	MZ441966	5-1	ZW206021	3-6	ZW413155	4-50
EZ315448	5-15x	MS397001	4-76	MZ441988	4-130	ZW231805	4-69	ZW413155	4-121x
EZ328320	16-29x	MS397012	4-79	MZ446951	5-8	ZW243516	4-122	ZW413155	6-31
EZ380428	7-10	MS397023	4-83	MZ446995	4-56	ZW257477	4-10	ZW413155	7-13
EZ382263	5-16	MS397473	4-48	MZ465772	16-11	ZW257477	4-25	ZW413155	15-3
EZ383938	5-14	MS408497	4-138	MZ802980	4-17	ZW259806	18-36x	ZW413155	17-30x
EZ397124	5-19	MS424192	3-8	SB438265	6-6	ZW260368	17-6	ZW413188	4-80x
EZ397135	5-10	MS432358	6-64	SB441516	6-26	ZW270088	2-9	ZW413278	4-78x
EZ397282	16-19	MS438243	6-28	SB441527	6-27	ZW270088	4-12x	ZW413728	7-17x
EZ397293	5-13	MS438254	4-59	SB441538	6-25	ZW270088	4-26x	ZW413741	4-88x
EZ397304	5-24	MS397451	4-42	SC426407	18-31	ZW270088	4-60	ZW413741	5-7x
EZ397304	16-31x	MS465480	4-81	SK210521	4-128	ZW270088	4-135	ZW413741	7-8
EZ397721	7-11	MT255420	2-5	SK397596	4-53	ZW270088	6-30	ZW413741	17-48
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EZ397743	7-12x	MT436860	2-15	SK425158	18-39	ZW270101	6-7	ZW413785	6-34
EZ397743	17-29x	MT488158	2-4	SK436252	6-15	ZW270123	4-46x	ZW414066	4-105x
EZ398946	16-20	MT495606	2-11	SK441472	18-9	ZW273734	4-44x	ZW416687	4-85x
EZ405213	7-6	MT495617	2-12x	SK441628	6-14	ZW273756	1-21	ZW417025	7-15x
EZ407586	7-2	MV248117	4-71	SM441448	18-4	ZW273756	4-139x	ZW417025	17-34x
EZ411287	17-47	MV248130	3-9	SM441450	18-5	ZW273756	7-5	ZW417137	4-7
EZ426780	18-3	MV408510	3-4	SM441461	18-6	ZW273756	17-17x	ZW417137	4-129x
EZ441483	18-8	MZ250413	4-99x	SM512897	18-7	ZW273756	18-14x	ZW417137	4-137
EZ441562	6-29	MZ302400	5-6x	SM512910	18-30	ZW273778	1-9	ZW417150	16-40
EZ441674	13-2	MZ314998	2-25	SP441360	18-20	ZW273778	1-26x	ZW419646	18-18x
EZ441764	17-28	MZ314998	4-115	SP441437	18-2	ZW273778	2-13x	ZW419646	18-34x
EZ441775	17-31	MZ315000	2-26	SP491905	18-21	ZW273778	4-120x	ZW419747	3-3x
EZ441786	17-33x	MZ315000	4-116	SP513347	18-22	ZW273778	7-16x	ZW419793	18-27x
EZ441797	17-2	MZ317373	2-21	SZ223042	17-16x	ZW273778	16-24	ZW420682	4-92x
EZ441821	17-35	MZ317373	4-86	SZ377190	18-17	ZW273778	17-42x	ZW421503	18-35x
EZ441832	17-36	MZ317406	2-30	SZ377190	18-33x	ZW273802	1-20x	ZW421806	7-4
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HL396630	1-53	MZ396911	4-22	SZ417194	4-159x	ZW290283	1-55	ZW426622	1-43
HL396685	1-56	MZ396922	4-6	SZ441314	5-27	ZW290283	2-28	ZW433001	4-35x
HL396718	1-59	MZ396933	4-15	SZ441325	5-28	ZW290283	4-111	ZW434160	4-54x
HL408508	1-57	MZ396944	4-11	SZ441336	4-157x	ZW316800	13-4	ZW434250	1-13x
HP513281	1-37	MZ396966	4-9	SZ441347	4-156	ZW317103	4-153	ZW434250	1-18
HR513292	1-28	MZ396977	4-24	SZ441358	4-158	ZW317171	4-70	ZW436026	17-11x
HZ231884	1-51	MZ396990	4-75	SZ441404	18-28	ZW321592	3-10	ZW439402	1-6
HZ243191	5-4x	MZ397045	4-93x	SZ441415	5-31x	ZW323728	2-27x	ZW439514	4-101
HZ317632	1-7	MZ397078	4-98	SZ441426	5-32x	ZW323728	4-5x	ZW439661	18-13x
HZ382680	1-23	MZ397080	4-95	UM488924	16-2	ZW323728	4-52	ZW439672	18-16x
HZ396448	1-2	MZ397168	4-87	ZG208091	4-123	ZW323728	4-96	ZW440291	16-34x
HZ396505	1-10	MZ397170	4-94x	ZG255633	2-7	ZW323728	4-136	ZW442585	13-3
HZ396584	1-4	MZ397170	16-39	ZG315011	2-29	ZW323728	4-148	ZW447761	5-22x
HZ396595	1-8	MZ397181	4-107	ZG315011	4-117	ZW323728	5-9x	ZW447772	5-12x
HZ396696	1-54	MZ397192	4-34	ZG317114	4-74	ZW323728	6-8	ZW447772	6-4
HZ396797	1-5	MZ397203	4-30	ZG317496	2-16	ZW323728	16-27	ZW447772	17-8x
HZ397034	4-84	MZ397214	4-33	ZG364656	1-31	ZW323728	18-24x	ZW447772	17-32
HZ405178	1-45	MZ397337	4-132	ZG366761	4-144	ZW329016	1-49	ZW447805	18-26x
HZ411074	1-35x	MZ397348	4-133	ZG396516	4-31	ZW336857	1-48	ZW447963	18-11x
HZ412637	1-19	MZ397394	4-125	ZG396538	1-47	ZW336868	1-32	ZW455231	1-33
HZ441911	1-29	MZ397405	4-37	ZG397440	4-45	ZW338635	1-41	ZW462194	16-30x
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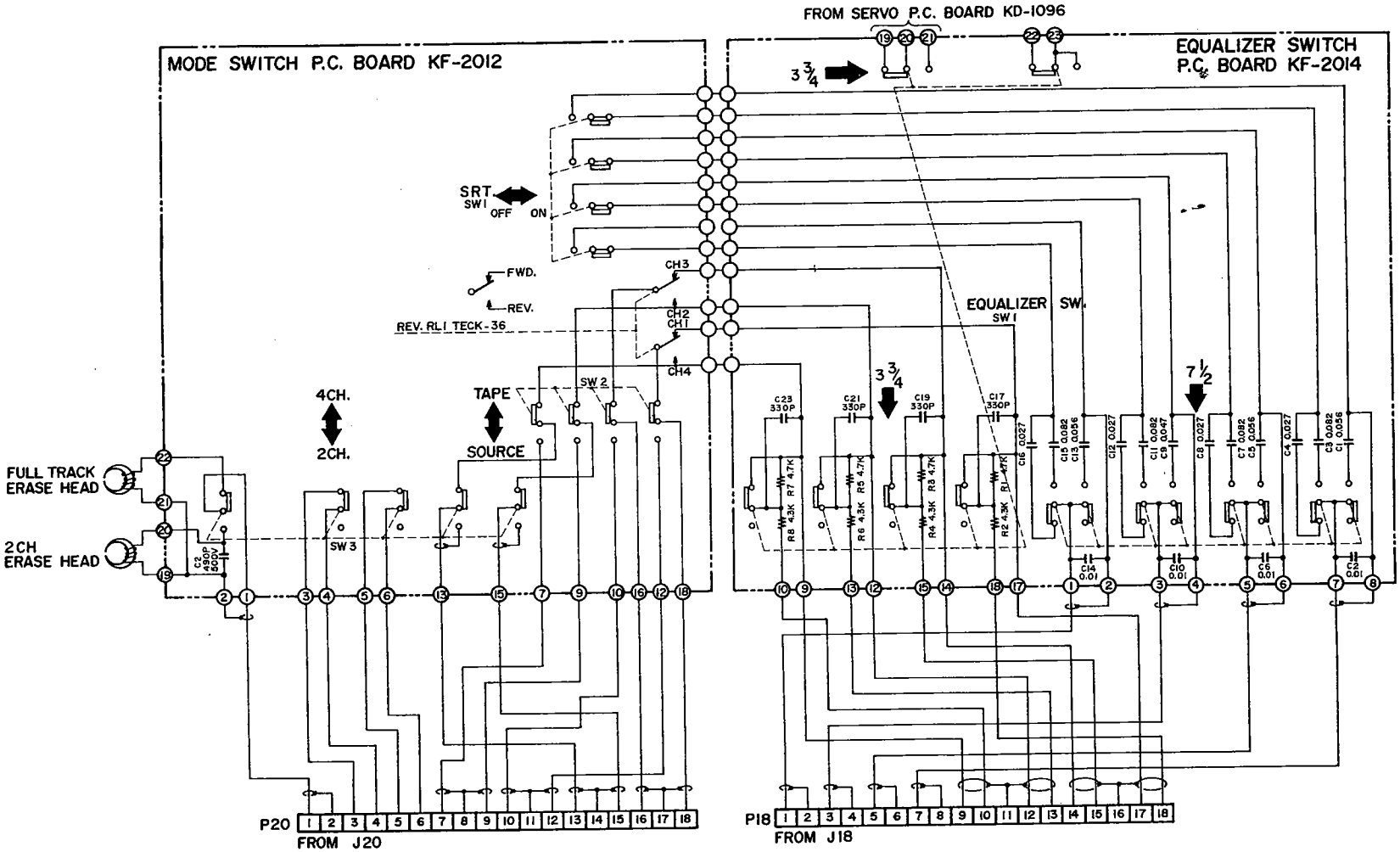
ZW468112	16-10								
ZW472274	16-5								
ZW490228	16-12								
ZW516611	4-82x								
ZW516644	2-18								

SECTION 3

SCHEMATIC DIAGRAM

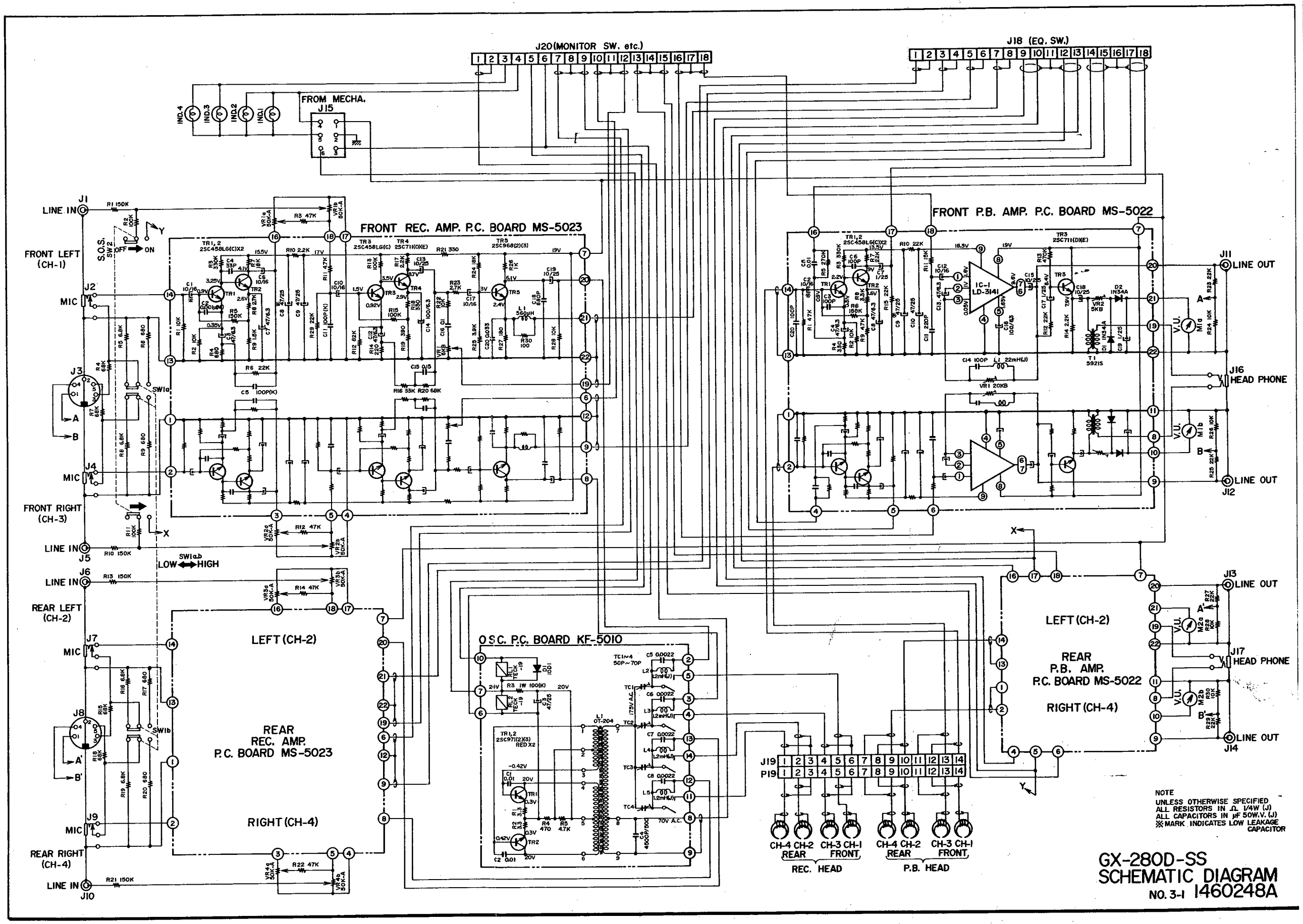
GX-280D-SS SCHEMATIC DIAGRAM

GX-280D-SS



—NOTE—
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN Ω 1/4W (J)
ALL CAPACITORS IN μF 50W.V. (J)

GX-280D-SS
SCHEMATIC DIAGRAM
NO.3-3 1460250A


J20(MONITOR SW. etc.)
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18
J18 (EQ. SW.)
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18
IND.4
IND.3
IND.2
IND.1
FROM MECHA.
J15
FRONT REC. AMP. P.C. BOARD MS-5023
FRONT P.B. AMP. P.C. BOARD MS-5022
J1
LINE IN
FRONT LEFT (CH-1)
J2
MIC
J3
J4
MIC
FRONT RIGHT (CH-3)
J5
LINE IN
J6
LINE IN
REAR LEFT (CH-2)
J7
MIC
J8
J9
MIC
REAR RIGHT (CH-4)
J10
LINE IN
S.O.S. SW2
OFF ON
SW1a
SW1b
SW1ab
LOW HIGH
LEFT (CH-2)
REAR REC. AMP. P.C. BOARD MS-5023
RIGHT (CH-4)
OSC. P.C. BOARD KF-5010
IC-1 LD-3141
J11
LINE OUT
J16
HEAD PHONE
J12
LINE OUT
J13
LINE OUT
J17
HEAD PHONE
J14
LINE OUT
LEFT (CH-2)
REAR P.B. AMP. P.C. BOARD MS-5022
RIGHT (CH-4)
J19
P19
CH-4 CH-2 CH-3 CH-1
REAR FRONT
REC. HEAD
P.B. HEAD
NOTE
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN Ω, 1/4W (J)
ALL CAPACITORS IN μF 50W.V. (J)
※MARK INDICATES LOW LEAKAGE CAPACITOR
GX-280D-SS
SCHEMATIC DIAGRAM
NO. 3-1 1460248A

GX-280D-SS SCHEMATIC DIAGRAM

NO. 3-2 1460249A

SYSTEM CONTROL P.C. BOARD KD-A1001

OPERATION LAMP P.C. BOARD KF-1002

MODE SWITCH P.C. BOARD KF-2012

REPEAT P.C. BOARD KF-2013

SERVO CONTROL AMP. P.C. BOARD KD-1096

TENSION

SERVO COIL

PICK UP COIL

TO EQUALIZER P.C. BOARD

REMO. CON. JACK

REMO. CON. DUMMY PLUG P3

MAIN MOTOR

SUPPLY

TAKE-UP

PAUSE

STOP

RWD.

F.F.

PLAY

REC.

REV.

REVERSE SENSING POLE

NORMAL SENSING POLE

4CH.↔2CH. SW3(MODE SWITCH P.C. BOARD KF-2012)

TENSION

SHUT OFF

POWER

A.C.

VOLTAGE SELECTOR

FOR AMP. P11

WG GX-280D-SS

A.C. 220V 50Hz F1 1A

REFERENCE
IN CASE OF MODEL WG GX-280D-SS(FOR WEST GERMANY) POWER PLUG IS DIFFERENT SHOWN AS ABOVE

NOTE
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN Ω, 1/4 W(J)
ALL CAPACITORS IN μF 50W(K)(J)
A1 to A18 ---- J1
B1 to B18 ---- J2

MUST HAVE DUMMY PLUG IN REMOTE SOCKET TO OPERATE